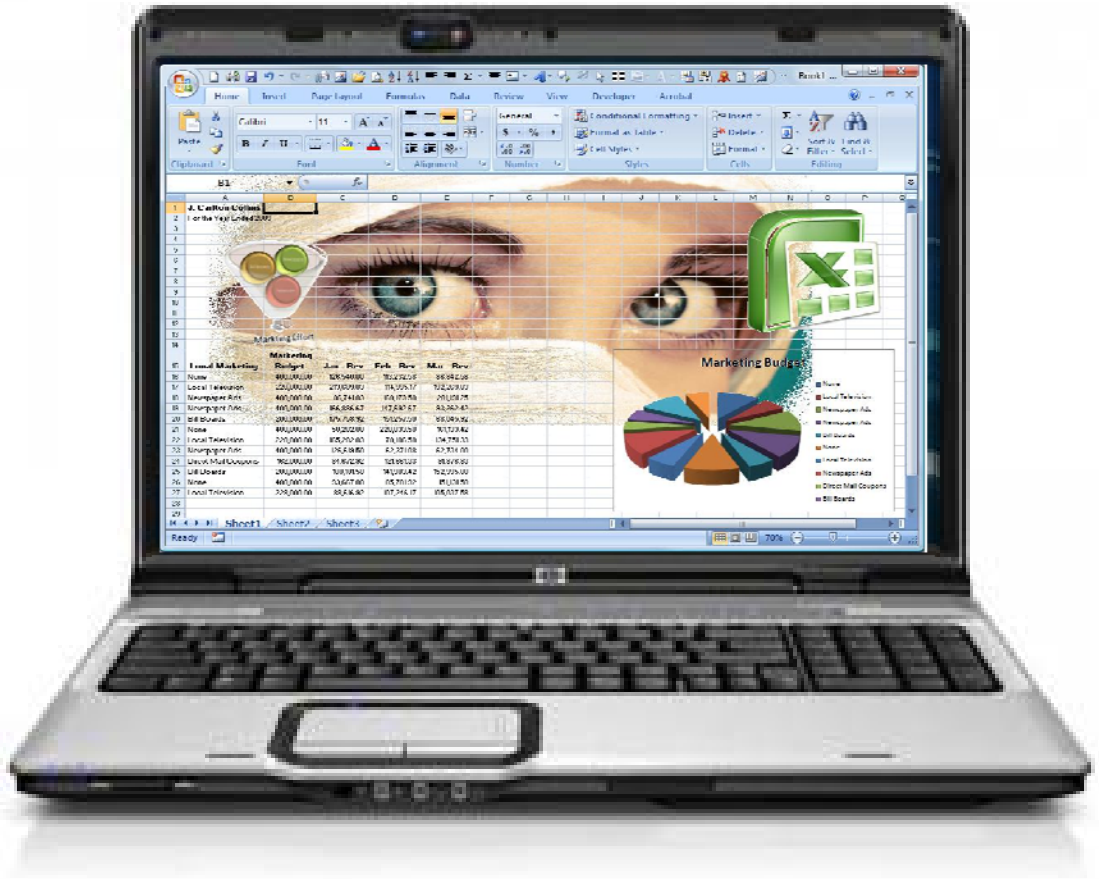
ASA Research

2010 Technology Update for CPAs



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2010 Technology Update for CPAs
Course Information

Learning Objectives	To educate CPAs about the latest developmentsin hardware, software, technology devices and applications to help them better run their companies and perform their tasks.
Course Level	Intermediate
Pre-Requisites	None
Advanced Preparation	None
Presentation Method	Live lecture using full color projection systems and live Internet access with follow up course materials
Recommended CPE Credit	8 hours
Handouts	Templates, checklists, web examples, manual
Instructors	J. Carlton Collins, CPA

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Parade of New Products

CHAPTER 1

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4G

HYPE – 10 MBPS
Reality – 2 MBPAS

Watch TV or Video on Your handheld Device
No Hotspot Required
It is 2X to 3X faster than 3G
Nice improvement for Cell Phones

IPAD

IPAD
$649 to $1,249
Really Just a Big iTouch
I Like the iTouch
Easier to Read Than iTouch
Far Too Big To be Handheld
Not as Powerful as Laptop
Costs More Than A Laptop
Heavier than eReaders
Fingerprints
Accidental Menus

Carlton's Advice, Get a Laptop – less Money, Does More, More Powerful

Iphone 4

iPhone4
$199 to $299
Really Just a iTouch w/ Phone
I Like the iTouch
Easier to Read Than iTouch
Far Too Big To be Handheld
Not as Powerful as Laptop
Costs More Than A Laptop
Heavier than eReaders
Fingerprints
Accidental Menus

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Blu-Ray

Blu-Ray
$ = Varies

Blue Laser Beams Are 1/10th The Size of Red Laser Beams

Thus Blu-Ray Disks can Squeeze Ten Times the Information Than a Standard DVD

Which Allows for HD DVDs

GoogleTV

Google TV
Web & TV Merge
SlingBox to Android Phones

Dell Streak

Dell Streak
$299
Dell's Answer to iTouch
Google Maps w/ Navigation

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Dell's Looking Glass

Dell Looking Glass
$399
Dell's Answer to iPad
Just a Bigger Streak
Google Maps w/ Navigation

Data Inherit

Swiss Company
$16.50/Month
Stores all of you Passwords
And 25 GBs of Data
Passes to your loved one's when you die

Sign of the times
What about your electronic data when you die? Erase it? All of it? Save it? Who owns it? Is there value? Is there embarrassment?

Flavors.Me

Flavors.me
$20 a Year
Create dynamic website using your personal web content.

http://flavors.me/carltoncollins

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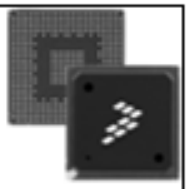
Canoe Lake

Intel's Canoe Lake Atom Chips
Lower Cost (<$199)
Smaller
Promises 8 Hour Battery Life
Only supports Linux

Chip Makers Targeting Cell Phone and Netbook Markets



http://en.wikipedia.org/wiki/Intel_Atom

Tab Napping

Coming Soon! – "Tab Napping"
Sneaky Virus replaces legitimate open tabbed browsers with fake browsers, and then asks you to reenter your login information

http://www.pcworld.com/article/197299/how_to_foil_web_browser_tabnapping.html

Spector Pro

Spector Pro
$99
Records every detail of what your kids or employees do on their computer.
Chats, instant messages, emails, the web sites they visit, what they search for, what they do on MySpace and Facebook, the pictures they post and look at, the keystrokes they type.

Office Wide Version Too – SpectorPro 360.

http://www.spectorsoft.com/

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Sprint Overdrive

Sprint Overdrive
$100 + $60/Month
4G Portable Hotspot for 5 Users
Fits in Shirt Pocket
Defaults to 3G and 2G when 4G is not available

http://mobilebusiness.sprint.com/broadband/index.htm?pid=4&id9-vanity:overdrive?id9-GEM_Google_C_Sprint_Mobile_Broadband

Green Slim

Casio Green Slim Projector
$849
2,500 Lumens
20,000 Hour Bulb
Mercury Free
Wireless Communication
5 Pounds
1.7"H x 11.7"W x 8.3"D

http://www.casioprojector.com/home

Solid State Drives

Solid State Drives
$25 to $26,287
50GB to 480GB
PCI, USB, SATA
Example - 50 GB OCZ for $170

http://computers.pricegrabber.com/hard-drives/p/11/st-sort/popup?||-100:1052/sortby-priceA

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Readers

Readers

Entourage $499 | Amazon Kindle $259 | Sony $149

http://electronics.pricegrabber.com/dictionaries-readers/reader/p/1991/form_keyword-reader/sh-query/sv-search_top/nd-1

BouneBack

BounceBack
$49 to $79
Creates a complete clone of your computer's primary hard drive and enables you to start your Windows operating system from an external USB hard drive.

http://www.cmsproducts.com/products/backup_software/bouncebackjdefault.html

Bose

Bose
Noise Cancelling Head Set
$299

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Pocket CamCorders

Pocket Camcorders - Many Brands
Creative Vado - $180
$130 to $280

Patriot Bolt

$18 to $259
8 GB to 64 GB
Encrypted

Patriot Bolt
8GB
$25

CHDT Corp
Personal Pocket Safe USB
4GB, $48

http://www.newegg.com/Product/Product.aspx?Submit=ENE&N=100007960%206000...

Key Coded Door Locks

Key Coded Door Locks

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InkJet Multifunction

EPSON RULES!

Epson Stylus NX515
$130
Color printer, Scanner
36 PPM
5760 x 1440 optimized dpi

Jabra Cruiser

JABRA CRUISER
$47
Hands Free Speaker Phone

Auto-pairing makes for easy set-up
14 hours talk-time and 13 days standby time
Multipoint allows you to simultaneously connect to two devices

SMART PHONES

Smart Phones

Google Android
(T-Mobile)

BlackBerry RIM Storm/Pearl
(AT&T, Verizon)

Apple Iphone
(AT&T)

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Smart Phones

LG VX9900

Palm Treo
(Verizon, Sprint)

HTC Touch Diamond
(All3G Networks)

Smart Phones:

Five Operating Systems to Choose From:

1. Google Droid O/S
2. BlackBerry O/S
3. Apple O/S
4. Palm O/S
5. Microsoft Windows O/S

Key is to Select the Best Cellular Provider in Your Area:

1. Verizon
2. AT&T
3. Sprint
4. T-Mobile

Smart Phones:

Are for people who don't always have a laptop with them
And want to check/send e-mails
And have their contacts/calendar/To Do with them

If You Always carry A LapTop, Then a Smart Phone is not Very Necessary

You can Forward E-Mails to a Regular Phone via MMS

The CHUBBY

CHUBBY
$179

A Bean Bag Computer/Alarm Clock/Photo Viewer
No, I Don't Know Why

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NetBooks

NetBooks
$300 Computers

Small, Light Weight, Cheap, Easier to Use than a Handheld, Browser, Not As Powerful
Works In A Pinch, But I prefer a LapTop

SKYPE TV

SKYPE TV

Video Conference Via your TV
http://www.skype.com/intl/en-us/get-skype/on-your-tv/

KEEP VID

KEEP VID
Save YouTube Video Clips to Your Computer As Self Running Files

http://www.youtube.com/watch?v=k2XhdjyOEEA&NR=1
www.keepvid.com

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Power Patrol

Oregon Scientific
$30
Monitor power consumption, carbon emissions, and real-time costs for up to eight appliances

10X ZOOM

NIKON COOLPIX
$300

The thinnest camera[3] in its class
Wide-angle 10x zoom
Macro shooting as close as 0.4 inch
14.2 Megapixels

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The Tech Savvy CPA

CHAPTER 2

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It's a Technology World - *Are You in It?*

The following article by J. Carlton Collins appeared in the 2009 Journal of Accountancy

Are you a technology champion or a technology laggard? Do you embrace technology or shun it? Presented below is a series of questions and explanations created by technology expert J. Carlton Collins to help you determine how technology savvy you really are, and perhaps help you to identify where you could improve your technology performance.

1. Do you use a full sized computer, monitor and keyboard to get most of your work done (ie: do you avoid using a laptop)?

   Why this matters - A laptop computer is not an ergonomic device which makes it harder for you to be productive over extended periods of time. Your keyboard should be below located below desk height so your arms are parallel to the floor. Your monitor should be even with your eyes. This allows your head to sit up straight atop your spinal column so that your neck muscles are not fatigued throughout the day – hence you can work longer and be more productive. Likewise a full sized keyboard, especially an ergonomic one, is more comfortable and allows you to work longer hours and avoid injury such as carpel tunnel syndrome.

2. Does your computer have more than one processor chip?

   Why this matters – A fast computer waits on rather than the other way around. In the same way that a small water leak wastes thousands of gallons over the course of a year, a slow computer steals your time and productivity. For the past 4 to 5 years, newer computers have multiple processors in order to gain speed. Excel should launch in one second, documents should start printing in 3 seconds, and web pages should pop up almost immediately. Anything short of this means that you are waiting around. Just 10 minutes of lost productivity each day adds up to more than a week of lost time each year.

3. Does your computer have more than 2 gigs of RAM?

   Why this matters – Today's operating systems (such as Microsoft Windows Vista) and applications need 3 gigs or more of RAM to operate fast and without glitches. Any less RAM, and you are probably encountering frustrating glitches and losing time throughout the year.

4. Are you using Windows Vista 64-bit or another 64-bit operating system?

   Why this matters – For more than 15 years personal computers have employed 64-bit architecture, yet only recently have 64-bit operating systems emerged to take advantage of that power. If you are still using a 32-bit system, you are "old school" and your computer's lack of performance is hindering your productivity.

5. Do you have a flat panel monitor on your computer?

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Why this matters – The older CRT style monitors used an oscillating beam of light which shined from the back of the unit onto the monitor screen and directly into your eyes. This makes working on an older CRT hard on the eyes and hinders productivity. A flat panel monitor of 19 inches or more will be a welcome addition to your computer that will enable you to work longer without eye fatigue and possibly avoid the health risks associated with using CRT monitors.

6. Does your computer have 2 or more monitors?

   Why this matters – You need to try it to fully understand it. Having two monitors allows you to view multiple applications at the same time such as Word and Excel, e-mail and Excel, or Word and your web browser. This makes it much easier to refer to data on one screen while creating content in the other screen, cut and paste data, or monitor multiple sources of information simultaneously.

7. Do you have a printer that duplexes (prints on both sides of the paper)?

   Why this matters – You can cut your paper costs in half by printing on both sides of the paper. Storage costs are also reduced and if you ship manuals or booklets, your shipping costs will decrease as well.

8. Is your printer hooked up via a network connection (ie: not connected via printer cable)?

   Why this matters – The traditional printer port on your computer is slow by today's standards. Setting your printer up as a node on the network will increase printing performance by as much as eight fold. Producing a document in 30 seconds instead of 8 minutes will make you more productive.

9. Does your e-mail address include your own domain name (ie: Not AOL, Gmail, Yahoo, or Hotmail?

   Why this matters – Your image matters. It takes only a few minutes and costs less than $30 per year to purchase a domain name and a few hundred e-mail accounts based on your company's name. This allows you to avoid using free e-mail accounts that end in AOL, Gmail, or Hotmail as your primary e-mail address. To many , the use of a free e-mail account addresses is a sure signs that you work for a "rag-tag" organization. When I see an AOL.com e-mail address, I typically assume the person to be a less sophisticated computer user.

10. Do you have a default signature block on all of your e-mails with complete contact information?

    Why this matters – If you are like most professionals, you send out thousands of e-mails each year. That said, you should not take the time to create thousands of signatures. Instead your e-mail system should insert a complete signature block for you. Further, your signature block should contain your complete contact data including company, city,

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state, phone, e-mail address and possibly the complete mailing address. To leave this data out is less than professional and will cause your recipient unnecessary effort should they wish to contact you or forward your contact information to a prospect or colleague.

11. Have you ever created an e-mail group (in Outlook or elsewhere)?

    Why this matters – You probably have at least one, if not several groups of people that you communicate with frequently. A list of employees, friends, members, colleagues, etc. can be set up as a single e-mail group fairly easily, and thereafter you can communicate with that group just by sending an e-mail to the group name, rather than individual e-mail addresses. It takes only a minute to set up an e-mail group which could save you a significant amount of time down the road.

12. Do you leave your e-mail up and running all the time?

    Why this matters – Your computer should wait on you, not the other way around. If you leave your computer on all the time, your e-mail reader (such as Outlook) will retrieve your e-mail every 3 minutes, and therefore your e-mail will be instantly ready to read when you are ready to read it. If you must boot up your computer, log into the Internet, launch your e-mail reader, and retrieve your e-mail messages, then checking e-mail will seem more of a chore than a useful tool.

13. Do you have more than one e-mail address (ie: one for business and one for personal)?

    Why this matters – Everybody has the need to maintain a professional e-mail address, but it is also a good idea to have a free e-mail address (from Google or Microsoft for example) to use for personal correspondence or signing up for web site passwords (like that recipe web site). This helps keep your professional e-mail from becoming a spam target; whereas if your personal e-mail is targeted, you can just drop it and get a new one.

14. Do you typically leave your computer on over night?

    Why this matters - It takes about 4 to 5 minutes to boot up a computer, launch the applications you were using the previous day, and retrieve the data files you were using. Likewise it takes 2 to 3 minutes to close applications and power down at the end of a day. This task could cost you 20 to 40 hours of wasted time each year. Instead, set up a password protected screen saver and make sure your monitor and printer shuts down automatically after 15 minutes of inactivity, but keep your computer up and running. This also allows virus checks, spam checks and backups to run in the wee hours of the night. As a bonus, your computer will always be available to you via remote access from any internet connection in the world.

15. Have you ever logged into your computer remotely?

    Why this matters – Remote access allows you to access your computer from any internet connection in the world – be it from home, a client's office or on a cruise ship half way

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around the world. With this technology you can check your e-mails, use your applications, and have access to all of your files via a secure connection. This also works well for remote training, troubleshooting, or for providing access to satellite locations.

16. Have you ever connected to a wireless Internet signal?

    Why this matters – The world is fast becoming one giant hot spot where you can hook into the internet from practically anywhere. Once connected you can access your computer, read the latest news, check stock prices, communicate via Voice over IP, etc. Connecting to a hot spot is usually an easy process.

17. Have you ever copy and paste-linked between two applications?

    Why this matters – It is easy to copy data and paste it into another application, and it is just as easy to paste-link that data so that when the original data changes, the destination data is updated automatically. Using the paste-link command can save you time and help you avoid errors.

18. Have you ever performed a Mail Merge to e-Mail in Word?

    Why this matters – There are numerous reasons for using mail merge. Perhaps you would like to send a personalized letter to all of your clients, produce a stack of custom contracts, or prepare an address booklet from a list or database of names. Word can extract data from a database, Outlook, Excel or other sources on a field by field basis to produce personalized letters or even personalized e-mails.

19. Have you ever created a Pivot Table in Excel?

    Why this matters - One of Excel's more powerful features is the PivotTable – but you need a heavy amount of data to fully appreciate its power. The PivotTable command can instantly convert detailed transactional type data into sleek, drillable reports. Why spend hours churning and manipulating data into a report format by sorting, moving data around, and inserting formulas when the PivotTable command can accomplish this same feat in two seconds?

20. Have you ever had your computer read to you?

    Why this matters - Your computer can read to you. In some cases it may be more productive to have your computer read you that document or e-mail so that you can multi-task while listening.

21. Have you ever created or sent an electronic survey (ie: Using InfoPath or through Zoomerang)?

    Why this matters – Not only is feedback important, it has been shown that the act of asking for feedback is also important – whether you actually receive any feedback or not. There are many survey tools that will help you create a survey, send the survey, and

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automatically tabulate the survey results. When was the last time you asked your clients (or employees) how well you are doing or how you could improve?

22. Have you ever searched your computer using Google Desktop or Vista Fast Find?

    Why this matters - Windows XP and older computers take forever to search your computer – but Windows Vista can find all of the files on your computer containing the word "Budget" in less than two seconds, even if there are hundreds of them. With this feature, finding that file you want is always easy. Once you have experienced this powerful search tool, you'll never again use the old search tools.

23. Do you filter your Internet searches?

    Why this matters – Most search engines (such as Google) allow you to turn on filters to block inappropriate web sites. Using these filters will help you find the information you are seeking faster and will help you avoid distractions and inappropriate sites.

24. Do you have high speed internet?

    Why this matters – The Internet represents the greatest opportunity to small business since the Renaissance. If you are surfing the Internet at slower speeds, then the Internet will seem more of a pain that a tool. Your computer should display web pages in about 2 seconds or less. Using dial up or slow internet access is like preparing a lengthy tax return by hand – they are both inefficient by today's standards.

25. Do you produce your business and personal checks on a computer (ie: don't write them by hand)?

    Why this matters – Are you still writing manual checks? Why? There are many tools, (including free tools like Microsoft Office Accounting Express) that will print the checks for you and each time you print a check your general ledger and income statement is updated. I pay my personal bills each month in about 6 minutes, how long does it take you? Whether for business or personal, manual checks will eat your time.

26. Do you have at least one social network set up (Linked In, FaceBook, Plaxo, MySpace, Twitter)?

    Why this matters – Who you know does matter – right? Social networks help you maintain your relationships be them business, personal, or casual. Linked-In is geared more for business relationships whereas FaceBook is geared more as a social tool that helps you maintain more personal relationships – but they both work well helping you keep track of all the people you know that might enrich your life professionally or personally.

27. Have you ever printed out driving directions from Google Maps, Map Blast, or similar web site?

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Why this matters – Getting lost wastes time, wastes gasoline, pollutes the atmosphere, and makes you late to the event. Internet based map tools can provide excellent driving directions that will prevent you from getting lost and hearing your spouse say "I told you so!"

28. Do you read frequently on the internet?

    Why this matters – The bulk of the information that is printed in newspapers and delivered on television shows up on the Internet days earlier. There are thousands of web sites you might read to stay current, but free sites like the AP Wire online and Digg.com will keep you well-informed.

29. Have you ever made a Skype phone call?

    Why this matters – Voice over IP is now 20+ years old and is better than ever. You can call any computer in the world free of charge, or call any cell phone or land line in the world for a couple of pennies per minute. One cell phone call from Europe to the United States might cost you $50 – but that same Skype call will costs less than twenty-five cents.

30. Have you ever published a web page to the Internet?

    Why this matters - There are billions of web pages out there – many of them obviously published by complete idiots - therefore you know that it must be easy – right? It is time for you to publish your own pages to the web. Pick your interest or expertise, write about it and publish it. If your content is useful or interesting to others you may attract interested parties to collaborate with, or customers to hire your services. Hint: In Word select "File, Save As A Web Page…"

31. Do you have a decent web site (ie: fair substantial, not lame)?

    Why this matters – The internet reaches out to more than a billion people in the world and costs practically nothing to create. Why wouldn't you utilize this medium?

32. Have you ever visited your State's camera based traffic web site?

    Why this matters – Most states and major cities display online road maps with live speed feeds, camera shots, and accident reports which can help you plot your trip and avoid heavy traffic.

33. Have you ever shopped for and purchased an item over the Internet?

    Why this matters – Virtually everything in the world is 20% to 25% cheaper when purchased over the Internet. Further, the Internet typically provides detail explanations, pictures, video clips, schematics, etc. to help you become more knowledgeable before you purchase. Unless I planned to eat it right away, virtually all of my purchases since 1996 have been made through the Internet.

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34. Do you keep your contacts, calendar, and to do list electronically (ie: in Outlook, not on paper)?

    Why this matters - The three most important things to CPAs are their contacts, their calendar, and their To-Do lists. Maintaining these items electronically allows you many advantages. For example, calendars are updated automatically when you accept meeting requests via e-mail. Calendars can be shared with one another. Calendars can be overlaid with other calendars to identify mutually available time slots. Contacts can be automatically updated via Plaxo. To-Dos items can be linked to time sheets. Most computer-based day planners will print paper versions that fit into the paper based day planner binders.

35. Do you carry a cell phone so that you are reachable?

    Why this matters – Business never stops. Emergencies happen. Sometimes you are needed right away and a cell phone can make you the "hero" instead of a "zero".

36. Do you text on your cell phone?

    Why this matters – Texting is like e-mail in your pocket. People can reach you and you can reach them anytime, anywhere without interrupting. Texting also creates a permanent record that voice calls do not.

37. Have you ever synced a handheld device or cell phone to your computer before?

    Why this matters – Entering large amounts of names and phone numbers into a cell phone is difficult and time consuming. Enter this information into Outlook instead, and the information will flow right into your cell phone via simple cable connection. Thereafter an occasional quick connection will transfer newly entered data from your phone to your computer, and vice versa so both devices have up to date data. Cell phones do become lost or stolen therefore backing up your information is a good idea.

38. Do you have a cell phone ear piece or head set?

    Why this matters – Multi-tasking increases your productivity and an ear piece enables you to talk on the phone with your hands free. A hands free ear piece makes driving safer as well.

39. Do you have wireless internet running in your office, home, or both?

    Why this matters – There is no longer a need to be tethered to the wall by a cable. Wireless technology allows you to network with other computers, print, and surf the Internet from anywhere in your office or home. This also saves money by eliminating the need to purchase cables, hubs and routers.

40. Have you set up encryption on your wireless router?

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Why this matters – Installing *a wireless router is like running a network cable out to the street so strangers can plug into your network. Setting up wireless encryption will solve this problem and it takes only a couple of minutes. Simply launch a browser and type the IP address that appears on the bottom of the router. This will enable you to turn on WPA encryption and assign a password. You will need to use this password the first time you through your computer, but afterwards your computer remembers the password and the connection will be automatic – and safe from strangers.*

41. Have you ever used a GPS system to find your way when driving?

    Why this matters – A GPS system not only gives you turn by turn directions to prevent you from getting lost, it also points you to restaurants, gasoline stations, and other services close to you.

42. Have you ever used a video projector before in a business situation?

    Why this matters – CPAs work with data, and ultimately that data needs to be delivered. In many cases the use of a full color projection system will help the CPA deliver that data and make the key points in a more informative and professional manner.

43. Have you ever burned a CD?

    Why this matters – Sharing data, or saving data is a fact of computers. Burning data to a CD represents an inexpensive way to share, back up, or manage data.

44. Have you ever used a USB thumb drive?

    Why this matters – Floppy disks are extinct; they have been replaced by USB thumb drives which can hold up to 20 gigabytes or more of data.

45. Is your computer protected by a UPS device?

    Why this matters – Power surges and power outages happen. A UPS device can keep the power up long enough to protect your computer against spikes and power surges, and will give you adequate time to power down your computer if the electricity is out for an extended period of time. Without a UPS, your computer and hard drive could be zapped at any time.

46. Have you ever password protected a Word document, Excel file, or Adobe acrobat PDF file?

    Why this matters – Some data is mission critical and needs to be protected. Almost every application provides the ability to password protect a file. Make sure to use the 128-bit encryption option as 40-bit encryption is not strong enough.

47. Have you encrypted your data folder or computer hard drive?

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Why this matters – The data on a lost or stolen computer can easily be retrieved, even if a computer bios or Windows password is used. To absolutely protect data on a lost or stolen computer, you must encrypt that data. Windows XP Professional and Windows Vista Professional allow you to encrypt a file, folder, or entire hard drive in less than 5 seconds. With this level of protection, your data is absolutely safe even if the computer is lost stolen, (assuming the password you used to encrypt that file, folder or hard drive is strong).

48. Do you maintain regular offsite back up of your data files?

    Why this matters – Like insurance, you hope that all back up efforts are a complete waste of time – but just in case the worst happens (such as a fire), you need to maintain a current backup of your data off site.

49. Have you backed up your entire computer in the past year?

    Why this matters – It is not enough to back up your data, you should also back up your entire computer periodically to preserve applications, e-mails, e-mail settings, etc as well as data files.

50. Do you remove the hard drives before disposing of computers?

    Why this matters – Old computers, cell phones, and hand-held devices often have data left behind that hackers can exploit. Don't take a chance, remove the hard drives before disposal and either lock them away or smash them with a hammer. Or you could use a Rocket Fish device to convert that old drive into a useful USB drive.

Give yourself 2 points for each Yes answer. Use the following grading system to determine how tech savvy you are.

A 90 to 100	B 80 to 90
C 70 to 79	D 60 to 69
E 50 to 59	F Below 50

How well did you do? I admit that technology will always frustrate you to some degree, but in the end the benefits derived from technology far outweigh any minor frustrations and pains that accompany those new technologies. All it takes is a little effort and a good attitude to transform oneself from a "computer loser" into a "computer user".

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Justifying the Cost of Technology

The adoption of new technologies takes time, effort and money; however, I have found that the implementation of the right technologies always pays for itself in terms of time savings and improved accuracy. Technology can improve employee performance and save labor costs far in excess of the cost of that technology; therefore technology really costs you nothing. You can test this theory by comparing the revenue per employee generated by the Fortune 500 companies before the computer craze (say 1980) to revenue per employee generated today. The comparison is staggering. Today's employee generates from five to twenty times the revenue today compared to 1980 (even after adjusting these amounts for inflation). People aren't that much smarter today, they just work far more efficiently. Consider these examples:

> ***Letter Writing –*** *I started my career in 1980 when the process of producing a letter involved handwritten drafts deposited in secretarial pools where eventually the letter would be typed and routed back to the author. A series of handwritten edits and revisions followed, including a typed envelope. This process could take several days to complete, copies were then made and filed away, sometimes in duplicate or triplicate. Later these files were archived or shredded - a process requiring yet more labor. Recording archived papers and retrieving them could take up to a half hour. At the time Xerox estimated that each page of paper produced by a corporation in 1980 cost about fifty dollars to produce, handle and store once all costs are considered. Today, letters are prepared faster on computers. Built in tools check spelling and grammar. E-mail systems send these letters immediately and archive them as well. The cost of producing that same letter today is estimated to be less than three dollars, and some estimates are far lower.*
>
> ***Time Sheets & Expense Reports -*** *In the 1980's the manual time sheets and expense reports I prepared required handwritten reports including detailed calculations. Other employees would manually gather these reports and re-enter the data. Both procedures were prone to human error. Today many employees operate far more efficiently by entering their time and expenses into web browsers using convenient drop down boxes. Input time is dramatically reduced, the need for hand calculations are eliminated, errors are far less frequent, the need to re-enter data is eliminated, and built-in logic rules automatically check data for errors as entered.*
>
> ***Ordering -*** *In the 1980's, companies employed a labor intensive reordering process which included manual inventory counts, comparisons to desired stock levels, preparation of purchase orders, mailing orders or manually phoning them in to the suppliers, re-entering orders by the suppliers, etc. This process was slow and subject to redundancy and errors. By contrast, today's automated supply chains track goods sold and automatically reorders those goods when optimum re-order points are reached. Electronic orders are sent to the suppliers accounting system automatically for immediate processing. There is virtually no labor involved. Built-in logical rules ensure that goods are reordered at the optimum times, and at optimum quantities. Just-in-time inventory systems have dramatically reduced the order to shelf time from about 90 days (for J C Penny's in 1980) to less than 3 days*

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(for much of Wal-Mart's goods today). Quicker orders allow companies to carry lower levels, which in turn reduces the carrying costs and interest on the floor plan note.

Hundreds of similar examples regarding direct deposits, bar code scanners, cellular phones, financial reporting, the Internet, CRM tools, printers, faxes, e-mail, spreadsheets, etc. offer proof that technology has dramatically reduced the expenses for all business large and small. Given the dramatic impact technology can have on a company, it is folly to believe that one-time investments in computers alone are enough. Companies should embrace and update their technologies each year including computer hardware, software, training, peripherals, and infrastructure. If a microwave oven took 8 hours to bake a potato, you would never use that microwave oven. Likewise, if your slow Internet connection takes 10 minutes to dial up, get connected, search, surf and find what you are looking for, it is doubtful that you will use that Internet technology to its fullest.

It has been said that "the latest thing these days is computer dating – if you don't know how to use one it really dates you". Don't get left behind, roll up your sleeves and embrace the latest technologies that will make you more efficient and competitive in the market place. These days "thinking cheap" may be the most expensive mistake you can make.

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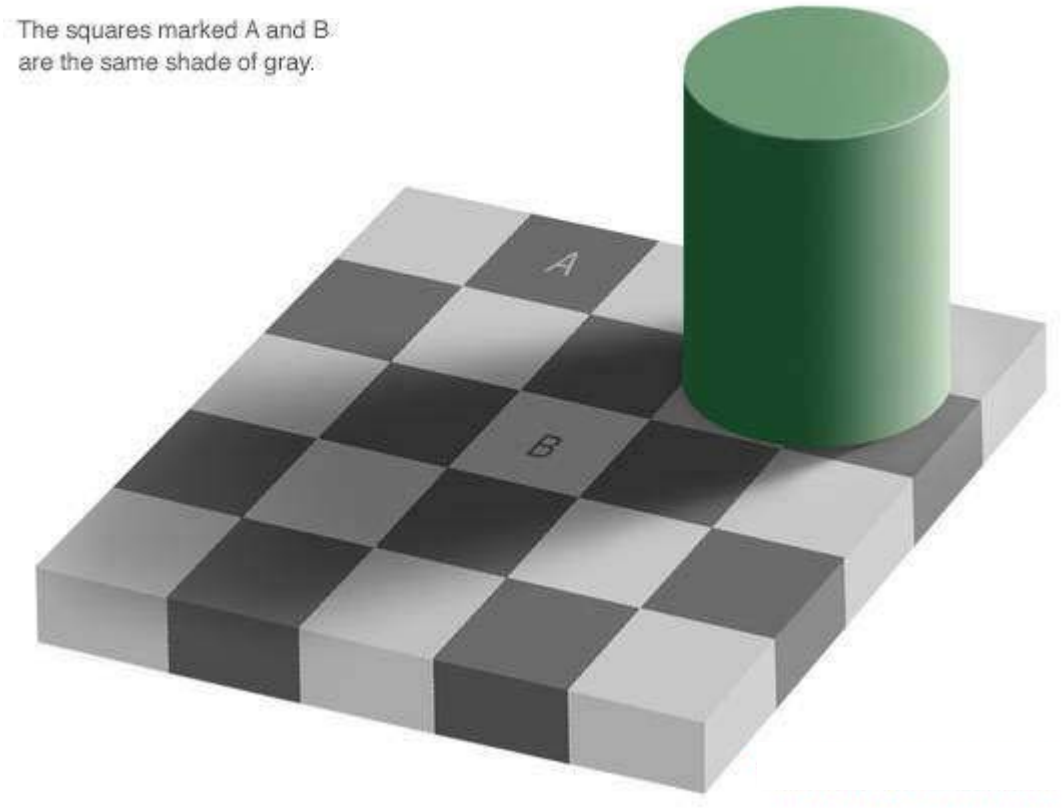
Tips & Tricks



CHAPTER 3

(Squares A & B are the same shade of gray)

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SPAM

The word SPAM was originally created by Hormel Foods, maker of the canned "Shoulder Pork and hAM. Later Monty Python's Flying Circus performed a spam skit in which a restaurant serves its food with loads of spam, and the waitress repeats the word several times in describing how much spam is in the items. When she does this, a group of Vikings in the corner start a song: *"Spam, spam, spam, spam, spam, spam, spam, spam, lovely spam! Wonderful spam!"* Thus the meaning of the term is at least *"something that keeps repeating and repeating to great annoyance".*[(1)]

How Big is the Spam Problem? - The California legislature found that spam cost United States organizations alone more than $13 billion in 2007, including lost productivity and the additional equipment, software, and manpower needed to combat the problem. Ferris Research estimates the 2007 cost of Spam at $100 billion world-wide, and $35 billion in the US – more than double the cost in 2005. Presented below are a few statistics:

10 Tips to Help Reduce Spam

1. **Use the Junk E-mail Filter in Outlook** - Outlook 2007 helps to mitigate the problem of spam by providing the Junk E-mail Filter, which automatically evaluates incoming messages and sends those identified as spam to the Junk E-mail folder.

2. **Block Pictures That Spammers Use As Web Beacons** - Office Outlook 2007 has an anti-spam feature that blocks automatic picture downloads when the content is linked to a server. If you open a message that has external content when this feature is turned off, the external content downloads automatically, inadvertently verifying to the server that your e-mail address is a valid one. Your e-mail address can then be sold to a spammer. You can unblock external content for messages that come from sources that you trust.

3. **Turn Off Read And Delivery Receipts And Automatic Processing Of Meeting Requests** - Spammers sometimes resort to sending meeting requests and messages that include requests for read and delivery receipts. Responding to such meeting requests and read receipts might help spammers to verify your e-mail address. You may want to turn off this functionality.

   To turn off read receipts, on the Outlook Tools menu, click Options, E-mail Options, Tracking Options, and click Never send a response. To turn off automatically acceptance of meeting requests, Click the Outlook Tools menu, Options, Calendar Options, Advanced options, Resource Scheduling, and clear the "automatically accept meeting requests and process cancellations" check box.

4. **Protect Your E-Mail Address** - Be cautious about posting your e-mail address on public Web sites, such as newsgroups, chat rooms, bulletin boards, and so forth. When visiting public sites, you might want to use an e-mail address that is different from your main e-

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mail address. Remove your e-mail address from your personal Web site. Whenever you list or link to your e-mail address, you increase your chances of being spammed.

5. **Review The Privacy Policies Of Web Sites** - When you sign up for online banking, shopping, or newsletters, review the privacy policy of the site carefully before you reveal your e-mail address or other personal information. Look for a link or section (usually at the bottom of the Web site's home page) called "Privacy Statement," "Privacy Policy," "Terms and Conditions," or "Terms of Use." If the Web site does not explain how your personal information will be used, consider not using the services at that site.

6. **Watch Out For Check Boxes That Are Already Selected** - When you shop online, companies sometimes add a check box that is already selected, which indicates that it is fine with you if the company sells or gives your e-mail address to other businesses (or "third parties"). Clear this check box so that your e-mail address is not shared.

7. **Don't Reply To Spam** - Never reply to an e-mail message — not even to unsubscribe from a mailing list — unless you know and trust the sender, such as when the e-mail message comes from a service, an online store, or newsletter that you have signed up with. Answering spam just confirms to the spammer that your e-mail address is an active one.

8. **Don’t send personal information via E-Mail** - Most legitimate companies will not ask for personal information to be sent in e-mail. Be suspicious if they do. Such a request could be a spoofed e-mail message disguised to look like a legitimate one. This tactic is known as phishing. If the possible spam appears to be sent by a company that you do business with — for example, your credit card company — then call the company to verify that they sent it, but don't use any phone number that is provided in the e-mail. Instead, use a number that you find by using other means, such as directory assistance, a statement, or a bill. If the request is a legitimate one, the company's customer service representative should be able to assist you.

9. **Don't Contribute To A Charity In Response To A Request Sent In E-Mail -** Unfortunately, some spammers prey on your goodwill. If you receive an e-mail appeal from a charity, treat it as spam. If the charity is one that you want to support, locate their telephone number or Web site to find out how you can make a contribution.

10. **Don't Forward Chain E-Mail Messages** - Besides increasing overall e-mail volume, by forwarding a chain e-mail message you might be furthering a hoax — and meanwhile, you lose control over who sees your e-mail address.

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Computer Settings

When I purchase a new computer, there are typically many setting adjustments I like to make before I start using the computer. Presented below is a listing of 42 of those adjustments.

1. Browser - Set Google Preferences to 100 web sites
2. Browser - Set up Links bar on your browser (with links to frequently used web sites)
3. Browser – Set up default page when launching a new browser (I use a page of links that I created)
4. Browser - Enable content advisor for children and employees, check box “users see sites with no rating”.
5. Desktop - Drag and drop LAN icon onto desktop (for quicker access)
6. Desktop - Drag and drop My Computer icon onto desktop (for quicker access)
7. Desktop - Set up short cuts to any frequently used network connections.
8. Display - Change background on desktop (to pictures of family)
9. Display - Setup password protected screen saver (to help prevent unauthorized access)
10. Download - Install Adobe acrobat reader (free) (this is a must-have application)
11. Download - Install Flash (free) (this is a must-have application for viewing many web sites)
12. Download - Install Google Pop Up Blocker or setup IE popup blocker (free)
13. Download - Install QuickTime (this is a must-have application for viewing many web sites)
14. Download - Install virus protection software (duh)
15. Download – Install and setup Skype (free) (so that you can call people using your computer)
16. Download – Install remote access such as GoToMyPC or LogMeIn (So you can access your computer)
17. E-mail - Setup Outlook e-mail accounts and import contacts
18. E-Mail - Set up automatic signature block (to save time and provide recipient with proper information)
19. Folders - Set up a data folder (I save all data files in a folder named DATA, and subfolders labeled by year)
20. Folders - Set data folders settings “to view detail” (I prefer this view because of it’s rich file information)
21. Folders - Set default data folder in Excel (So that all Excel files save to and open from the correct folder)
22. Folders - Set default data folder in Word (So that all Word files save to and open from the correct folder)
23. Folders- Set picture folders settings to “Pictures and Videos” so you can play slide shows/
24. Mouse - Accelerate your mouse (so the pointer moves across the screen before you run out of mousepad)
25. Mouse - Accelerate your scroll button (so that less finger rolling produces more scrolling)
26. Mouse – Check the “hide while typing” box (so the mouse pointer won’t jump around)
27. Periodically - Delete internet history files periodically (this helps your browser run faster)
28. Periodically - Download all Windows and Office updates regularly (this should now be automatic)
29. Periodically - Make an emergency boot disk, tape it to side of computer (Just in case the worst happens)
30. Periodically – Reboot - shut down computer gracefully, don’t just shut off power
31. Quick Launch - Set up Quick Launch Bar (To establish quick access to frequently used applications)
32. Quick Launch – Drag copies of icons to Quick Launch Bar for your frequently used applications
33. Set Control Panel to Classic View (I like this view better)
34. Office – Set menus to “show full menus” (to avoid lag 3 second time between click and full menus)
35. Office – Set Office Assistant to only pop up via the F1 key (to keep help from interrupting your work)
36. Vista – Setup Indexing to index all data files and e-mail files in your computer (for fast searching)
37. Camera – Install web camera for use in many uses, including Skype phone calls
38. Control Panel – Setup Backup routine to run regularly
39. Control Panel – For laptops, adjust power settings so that computer does not turn off too quickly
40. Control Panel – For laptops, adjust power settings so monitors and printers do turn off quickly
41. Speech – Train system to recognize your voice so that you can dictate to your computer
42. Devices – Setup synchronization with your handheld devices
43. Photos – Set up automatic download and red eye removal for all photos when you plug in photo card
44. Control Panel - Set your clock to stay in sync itself with the Internet time clock.
45. Control Panel - Make sure that you set a screen saver to save your monitor and to save energy.
46. Control Panel - Set your default Internet page.
47. Control Panel - Set Security levels to high.
48. Control Panel - Set up printers, including multiple instances of the same printer, with different preferences such as printing landscape, draft quality, or multiple copies.

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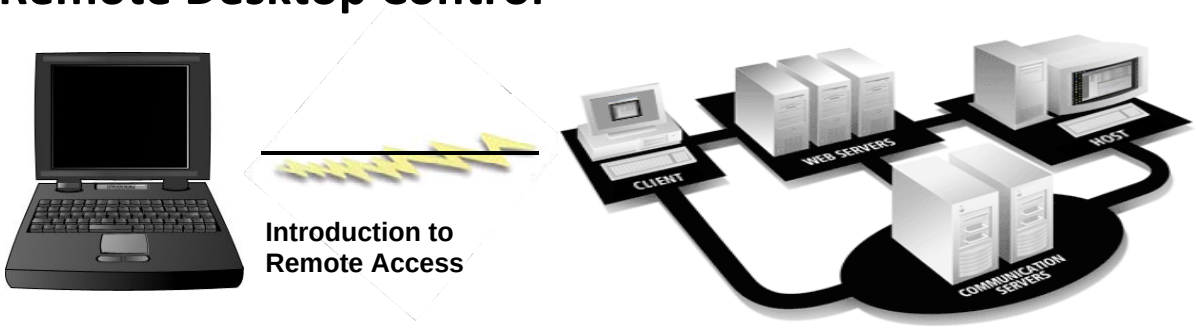
Remote Access

Remote Desktop Control



Remote access becomes important when you travel away from your computer, or when two or more separated people need to share the same data. For more than 15 years, Citrix MetaFrame was the defacto standard for establishing high performance remote access while pcAnywhere was the defacto low cost solution. In recent years new solutions have risen to challenge both of these solutions. In particular, Microsoft Terminal Services is arguably as good as Citrix, and priced far lower (30% to 40% lower). In addition, web based solutions such as "GotoMyPC" and LogMeIn have become the preferred low cost and easy solutions. In addition, Microsoft Windows includes a remote solution as well. There are more than 425 downloadable solutions located here: http://www.download.com/Remote-Access/3150-7240_4-0.html; however the main solutions are as follows:

Some Low Cost Remote Access Solutions	Some High End Remote Access Solutions
GoToMyPC LogMeIn webex Symantec pcAnywhere 12.0 Remote Desktop Connection remotepc beinsync	CITRIX Windows Terminal Services Array NETWORKS Access. Security. Performance.

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Benefits of Using Remote Access

There are numerous situations that call for a remote access solution. Traveling employees often need access to their e-mail, calendar or contact list. Traveling sales representatives need access or to the accounting system for entering orders of looking up inventory levels and customer history information. Work-at-home employees need access to their office computer. Multiple location companies need to connect remote locations to a centralized accounting system. Troubleshooting/support professionals need to log into the customer's remote system for maintenance purposes.

Synchronization

Introduction

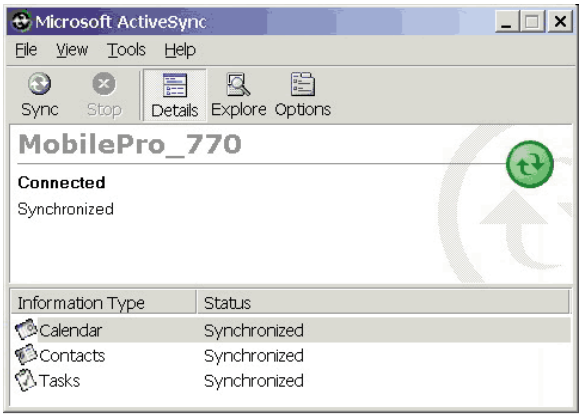
Implementing a synchronization solution can be one of the best measures you can take to make you more productive. In effect, you can carry the equivalent of your Rolodex, calendar, and notebook with you wherever you go and eliminate the need to rerecord on your PC the information you enter on your PDA and vice versa. You generally will sync data to achieve two goals as follows:

1. You can sync data among the various computers and devices you use, or
2. You can sync data between computers and devices used by other people

Syncing Examples:

1. Sync your contacts, emails, calendar, and to do list with your hand held device.
2. Sync your contacts, emails, calendar, and to do list with your laptop computer.
3. Sync your contacts, emails, calendar, and to do list with your cellular phone.
4. Sync your contacts with a master contact file maintained by your company.

Hand Held Devices - Let's face it, inputting large volumes of data into a hand held device such as a Palm Pilot or iPAQ is a tedious activity; it is much easier to input this information into a desktop computer using a full keyboard and large screen. Thereafter you can use a cradle to simply sync your desktop data with your hand held device. Once configured, it is as easy as plugging in your hand held device, and today's syncing technologies update your information automatically.



SYNCing Products

There are many syncing tools designed to keep your data in sync, a few of which are listed below:

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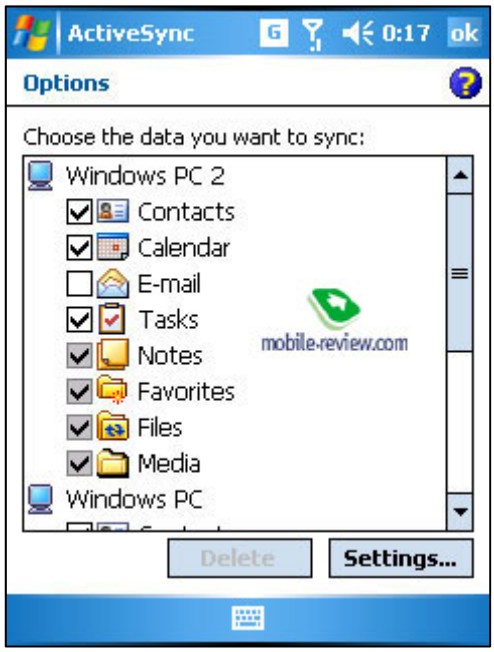
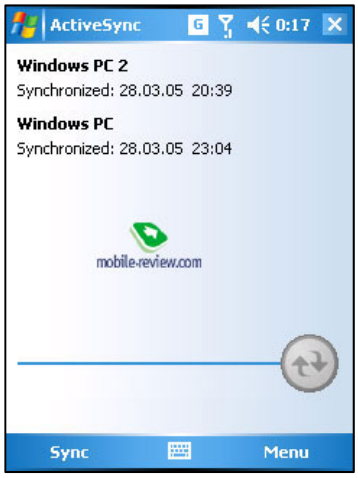
Microsoft ActiveSync
Palm's HotSync
Pumatech's Intellisync

ActiveSync - Microsoft's approach to synchronization started with H/PC Explorer, which was basically a Windows Explorer add-on that gave desktop users access to files and data on Windows CE 1.0-based handheld PCs (H/PCs). H/PC Explorer evolved into Windows CE Services for Windows CE 2.0 and Windows CE 2.1, then into ActiveSync for Windows CE 2.2, 3.x, and now PocketPC 2003 devices. Like HotSync, ActiveSync synchronizes data between desktop applications and Pocket PCs or other Windows CE-based PDAs. However, ActiveSync synchronizes only with Outlook (and the older Schedule+). The screen shot below shows a successful Calendar, Contacts, and Tasks synchronization with ActiveSync 3.1.





Required hardware depends on the device in question. You can use serial ports, the default for older devices; USB ports for newer devices; infrared ports; modems for dial-up access; or Ethernet PC-cards and CompactFlash cards for access over the corporate LAN. Microsoft doesn't provide a server-side synchronization product comparable to HotSync Server. The company relies on third-party developers and solution providers to extend the enterprise features of its Pocket PCs and other mobile devices. In my experience, ActiveSync is almost as reliable as HotSync. Occasionally, however, a user's PDA will refuse to synchronize with its host PC. You can usually solve this problem by rebooting the PDA and, if necessary, restarting Windows on the host PC.

Along with the release of the new OS for PocketPCs, Windows Mobile 5.0, Microsoft is also unveiling a new and improved version of ActiveSync. According to synthetic tests the synchronization speed has increased slightly by 10-15%. Data access speed has also skyrocketed. Even if the connection drops out, the next connection will resume the process from that point. Windows Mobile 5.0 offers users new features such as the ability to sync pictures in contacts and wirelessly sync over Bluetooth®. Users can easily sync media files,

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playlists and song ratings right from Windows Media Player 10 Mobile on their desktop PC, and listen to them on their mobile device. The new OS adds support for integrated hard drives, allowing users to carry several gigabytes of music or information right on their phone or PDA, and provides added support for USB 2.0, which will greatly increase file transfer speeds and synchronization of information between PCs and Windows Mobile-based devices. End users now can take a picture from their phone and easily assign it to a contact for display not only in the Contacts application, but also in the caller ID window and e-mail message header when that contact calls or sends e-mail. Pictures also can be assigned on a PC in Outlook and synchronized to a user's device.

Basic synchronization settings also increased in the new version. The user can now choose contact groups for synchronization and exclude separate contacts from the process. The same is true for Calendar and Tasks. To synchronize e-mail you can choose folders and subfolders.

Fear not however, because ActiveSync 4.0 supports devices that are not running Windows Mobile 5, but new features to ActiveSync (like the media sync feature) will not be available. The era of ActiveSync 3.x is OVER. Windows Mobile 5 introduces ActiveSync 4.0 which boasts a new style and new features, but also legacy support. ActiveSync 4.0 still supports old devices, but not to the same extent of Windows Mobile 5 devices. In ActiveSync 4.0, device setup is easier, USB 2.0 is supported, music and video transfer is supported, and improved error handling is integrated into the software. If you are thinking of upgrading your handheld or are purchasing for the first time, look for models running Windows Mobile 5 and ActiveSync 4.0.

Of course ActiveSync can still be synced over a Wireless connection but first the connection settings and synchronization must be achieved through a wired or serial connection for the initial setup. After partnership is established using a serial, Bluetooth, or USB connection, open the Connection Settings dialog box and check the box marked "allow network and Remote Access Service connection with this desktop computer. After closing the box, start ActiveSync on your device and tap the sync icon. If you connected to the same Wi-fi network as your host PC, synchronization should commence. The PocketPC will disconnect after synchronization to conserve battery power, but you can also alter this setting by opening the Options dialog in the Tools menu.

HotSync - Palm initially designed HotSync to work with Palm Desktop, Palm's personal information manager (PIM). However, Palm quickly realized that supporting third-party desktop PIMs was crucial to convincing enterprises to accept the Pilot and its successor devices. To that end, Palm came up with conduits, a standard technology for translating data between Palm OS-based PDAs and various PIMs. Today, Palm's connected organizers work well out-of-the-box with most desktop PIMs, including Microsoft Outlook. For enterprise users and network administrators, Palm offers Network HotSync, an application that lets users synchronize their

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organizers across a network connection. The application still synchronizes only between users' Palm devices and users' desktop PCs but allows this synchronization across a LAN.

Palm also offers HotSync Server, a server-based application that includes a conduit for Microsoft Exchange Server, which lets you synchronize multiple PDAs from one server. (Conduits for Lotus Notes and Actual Software's MultiMail Professional are on the way.) HotSync Server supports synchronization with a serial cradle, a wired or wireless modem, and standard RJ-45 cabling and Palm's Ethernet Cradle to connect through the corporate LAN. In day-to-day use, I've found HotSync to be almost bulletproof. The only problems I've encountered with the product result from HotSync's methods for mapping fields from the PDA's built-in databases to fields on the desktop PIM. These problems are usually minor and inconsequential. For example, the mapping process might change delimiters (e.g., quotation marks) in names. In some cases, a PDA's space limitations might cause HotSync to truncate long notes.

Intellisync - If your company uses Pocket PCs and a different PIM or groupware application than Outlook, your users will need a third-party add-on to provide synchronization. Of such products, Intellisync is the most popular. Intellisync runs on both Palm and PocketPC platforms and synchronizes with a range of PIMs and enterprise email and groupware products, including various versions of Outlook, Schedule+, and Exchange Server; Symantec's ACT!; Lotus Organizer and Lotus Notes; Novell's GroupWise; Interact Commerce's SalesLogix; and Palm Desktop Software. Intellisync's power lies in its flexibility. The product lets the user select different desktop software with which to synchronize each of the PDAs' built-in databases. For example, you can synchronize contacts with ACT!, the calendar with Outlook, and email with Lotus Notes. Intellisync also lets the user modify how desktop application fields map to the PDA, a feature that both HotSync and ActiveSync lack.

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Hacking & Cracking

Introduction

Hacking, Cracking, and Phreaking are alive and well today. The Internet provides the communication pipeline that allows tens of thousands of hackers, crackers, and phreakers to share information and teach one another how to bust into the latest hardware, local area networks, operating systems, and software application products. Today, anyone with a desire to do so, can become a hacker, cracker or phreaker and try their hand at hacking, cracking, or phreaking. Just so you know:

> The term "**Hacker**" refers to non-destructive, law abiding people who are expert programmers and systems wizards. They fancy themselves as "computer gurus" who use their talents to make things work. You are not considered to be a "hacker" until other "hackers" routinely refer to you as a "hacker". Being a "hacker" is supposed to be "COOL".
>
> The term "**Cracker**" refers to destructive people who use their hacking skills (or hacking tools) to break into systems, destroy systems, steal data, rip off application software, and perform a number of illegal activities. Being a "Cracker" is "CRIMINAL".
>
> The term "**Phreaker**" refers to people who break into telephone systems in order to call long distance with no charge, to tap phone lines, to break into voice mail boxes, to steal information, to eaves drop, to cause damage, etc. Being a "Phreaker" is also "CRIMINAL".

Why Study Hacking, Cracking & Phreaking?

The fact that virtually any intelligent person can easily become a hacker, cracker, or phreaker poses a security threat to every organization. Today's Systems Information professionals need to be aware of the type threats that exist today in order to take the necessary measures to protect against these threats. In some cases, System Information Professionals can use the same tools the crackers use in order to test the security of their own systems. In other cases, knowledge in this area can help the Systems Information Professional identify employees or others who may be openly discussing these tools, searching for these tools, or downloading these tools in time to take corrective measures. Further an understanding of these threats is necessary to help Systems Information Professionals develop policies and procedures to help prevent problems before they arrive.

How Easy Is It To Become A Cracker?

Simply search the Internet for a file called "40HEX". You will find this file available on hundreds of web sites. This file contains the 40 most deadly know viruses in the world, along with instructions for altering these viruses to make them more deadly. From here, you could simply send these files to an unsuspecting person via a diskette, e-mail, or web page downloadable file. The diskette, e-mail message, or web page could assert that the file will clean up a

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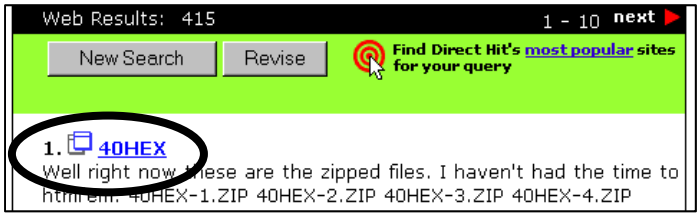
Windows XP hard drive - thereby making your system run up to 30% faster. Many suckers would fall victim to such a scheme.


Web Results: 415
1 - 10 next
New Search
Revise
Find Direct Hit's most popular sites for your query
1. 40HEX
Well right now these are the zipped files. I haven't had the time to
40HEX-1.ZIP 40HEX-2.ZIP 40HEX-3.ZIP 40HEX-4.ZIP

There are also guides, tutorials, text books, and lessons all designed to help you learn how to become a Cracker. All you need do is search the Internet for the term "cracker", and you will find over 2,570,000 web sites with information on the subject - incredible. Because of the criminal nature of these web sites, they are constantly moving from one web server to another as they are censured by their web page hosting service or as lawsuits are filed against the owners of these web sites. Still, these crackers seem to simply move their web site to a new server for a few months, announcing their moves in the cracker chat rooms and discussion groups. Censuring these web sites is akin to herding cats - it's simply not going to happen.

Hacking & Cracking Tools

There are a multitude of hacking and cracking tools available for easy download from the internet, tens of thousands of them. These tools basically can be categorized as follows:

1. **Serialz** – Refers to enormous lists of product serial numbers shared by hackers to allow others to use software applications illegally.
2. **Key Generators** – Refers to programs that generate a valid password based on your user name, which allows a person to run pirated software applications.
3. **Crackz** – Refers to cracking programs designed to crack into password protected systems.
4. **Anonymous Senders** – Refers to programs or web sites that allow persons to send e-mail anonymously. (It is rumored that at least half of these sites are operated by the FBI.)
5. **Bombers** – Refers to executable programs that will cause another system to crash. For example, a bomber attached to your e-mail would make an illegal call to a section of memory used by Windows for another service – causing the system to crash. These bombers are sometimes referred to as **"pings of death".**
6. **Port Bombers –** Bombers designed to confuse your port, and break your connection to the Internet.
7. **ICQ** - Programs designed to kill ICQ and people over ICQ. ICQ is an instant messaging, chat, and file transfer.
8. **IRC Tools** Internet Relay Chat tools are programs designed to generally knock people off IRC any way possible.
9. **Flooders** – Refers to programs that send large volumes of information continuously to a specific e-mail or IP address to cause a slow down or denial of service.

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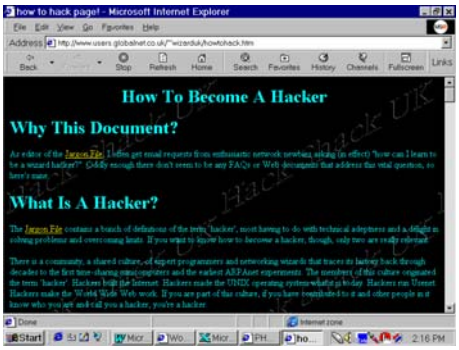
10. **Sniffing Tools** – Refers to programs or devices that watch for LAN or internet traffic, and captures IP addresses, logon information, passwords, data, etc.
11. **Key Loggers** – Refers to spy software that records the keystrokes typed by a user and forwards those keystrokes to a mail recipient. For example, the FBI is reported to use a strong key logger called DIRT to tap into suspected criminals in order to capture their logon and password information.
12. **Spoofing Tools** – Refers to programs that attempt to circumvent firewalls by masquerading as legitimate traffic received from legitimate IP addresses.
13. **Nukers** – Executable programs which access ram in such a way as to cause a blue screen of death.
14. **Phreaking Tools** – Tools designed to break into telephone systems and phone mail systems.

Sample Hacking, Cracking & Phreaking Web Sites

1. http://www.users.globalnet.co.uk/~wizarduk/howtohack.htm - This page provides a basic introduction to hacking.
2. http://www.dragonfire.net/~ac2k/nes/hackguid.htm - Contains many documents that describe common hacking techniques and allow you to download useful hacking utilities.
3. http://www.mods.com/hackersguide/contents.html - A guide to hacking with Netscape.
4. http://www.trinsic.org/index.php?t=2&n=0 - Example of Serial Lists of access and registration keys.
5. http://www.hack.cc/ - Planet Hack - A well kept site where you can down load many of the latest hacking and cracking tools available today. Maintained by a guy who calls himself Flaming Cow.
6. http://www.hackersclub.com/km/frontpage/index.html - The Hackers Hideout
7. http://ftp.eff.org/ - Electronic Frontier Foundation contains many articles on the subject of hacking, cracking, phreaking and government's attempts to block such activities.
8. http://www.ozemail.com.au/~geisha/index1.html A well kept site that contains all sorts of hacking and cracking stories, files, links, etc.
9. http://www.2600.com/mindex.html - 2600 The Hacking Quarterly.



Hacker's Guide to Navigator - Microsoft Internet Explorer
Hacker's Guide to Navigator
by Dan Cradler
What's Happening
Book? What Book?

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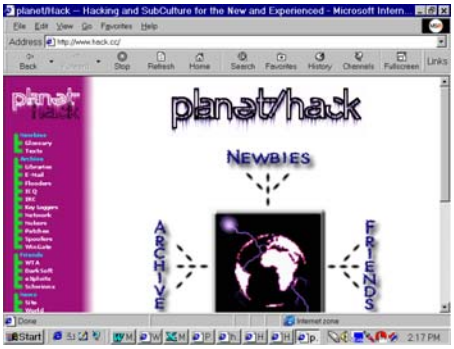
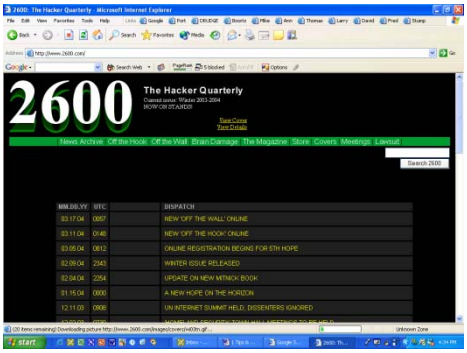
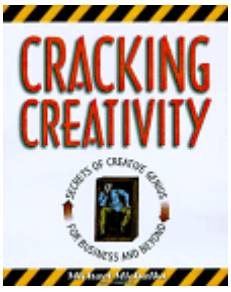
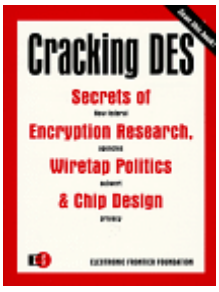
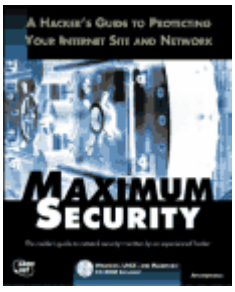


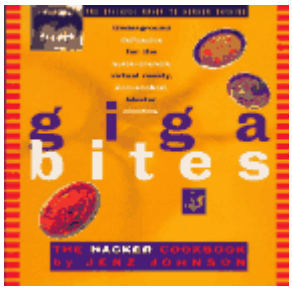


Hacking, Cracking and Phreaking Books









There are plenty of books available on the subjects of Hacking, Cracking and Phreaking. For example, the book *Maximum Security* was written by an anonymous hacker to help you protect your system from invaders and the arsenal of tools, back-end secrets, and bugs they have at their disposal. We don't know much about the author of *Maximum Security*--only that he was convicted of multiple crimes involving friendly neighborhood ATM systems before deciding to use his talents in a more law-abiding fashion. Told from a hacker's perspective, *Maximum Security* details methods for concealing identity, cracking passwords, and gaining access to systems running everything from Unix to Windows NT to the Mac OS. He also explains how best to counter or prevent these techniques. Every system administrator should read this book and sleep better at night for having done so.

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Software Piracy

Are You at Risk?

Has your company illegally installed multiple copies of a software program on multiple computers? Is your company using pirated software? If so, you are at risk. If you are caught, the penalties can be huge. For example, one Louisiana hospital was found to be running 500 copies of WordPerfect, and copied from a single copy of WordPerfect which itself was pirated. The company was caught and fined more than 2.5 million dollars.

Penalties for Using Pirated Software

Illegal distribution of software can subject a seller to arrest and felony charges with fines up to US$250,000 and prison terms of up to 5 years. If the copyright owner brings a civil action against you, the owner can seek to stop you from using its software immediately and can also request monetary damages. The copyright owner may then choose between actual damages, which includes the amount it has lost because of your infringement as well as any profits attributable to the infringement and statutory damages, which can be as much as $150,000 for each program copied.

Who is Responsible?

Company officials can be held responsible if they know about the use of pirated software, or if they take no measures to track and deter the use of pirated software. Simply looking the other way is not good enough in some states and jurisdictions. Under "vicarious liability" of the US Copyright Act, an employer is liable for acts committed by its employees when those acts are within the scope of their employment duties. Another theory of liability is the doctrine of contributory copyright infringement, whereby a party who does not do an infringing act but who aids or encourages it is liable for the infringement.

Sources for Pirated Software

1. **Illegal Copies -** Legitimate software copied illegally on additional computers becomes pirated software. Most license agreements allow the same user to install software on both their laptop and desktop computers, provided they use only one copy of the software at a time.

2. **The Black Market -** The streets of Hong Kong are full of pirated software – products that sell for hundreds of dollars in the US are widely available for $5.00 on the black market.

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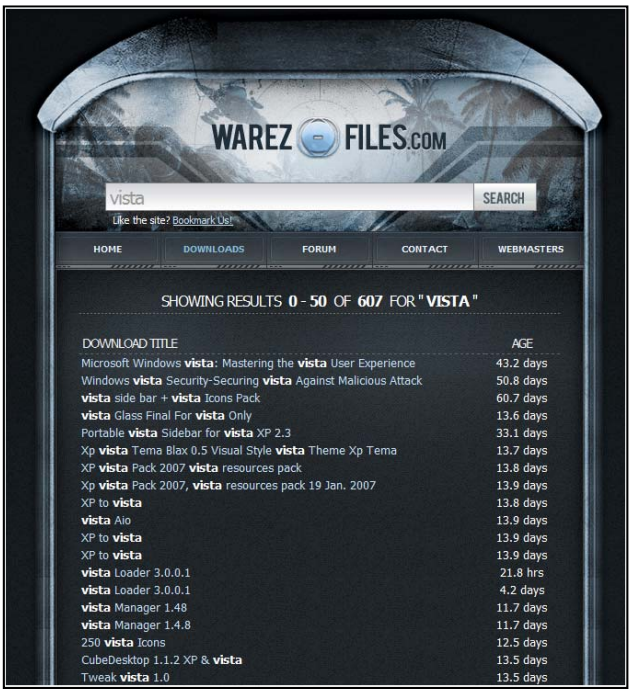
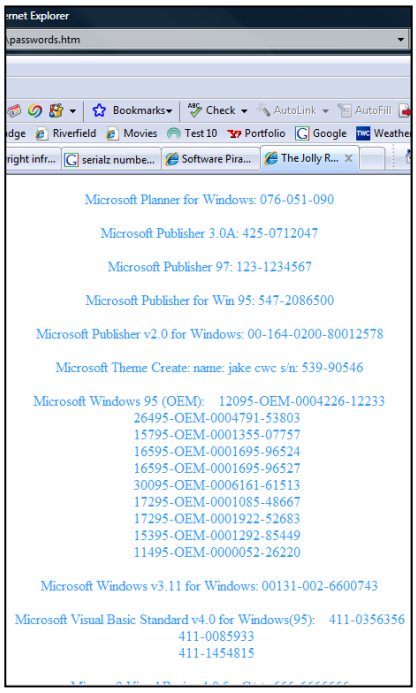
3. **WAREZ & SERIALZ** – (Pronounced “wears”, this term is hacker slang for “illegal software”). Tens of thousands web sites exist where you can download virtually any software on the planet. Once downloaded, thousands more SERIALZ (pronounced “cereals”, this term is hacker slang for “illegal serial numbers”) provide serial numbers that you can (attempt) to use in order to install the product.


WAREZ FILES.COM
vista
SEARCH
Like the site? Bookmark Us!
HOME
DOWNLOADS
FORUM
CONTACT
WEBMASTERS
SHOWING RESULTS 0 - 50 OF 607 FOR "VISTA"
DOWNLOAD TITLE
AGE
Microsoft Windows vista: Mastering the vista User Experience 43.2 days
Windows vista Security-Securing vista Against Malicious Attack 50.8 days
vista side bar + vista Icons Pack 60.7 days
vista Glass Final For vista Only 13.6 days
Portable vista Sidebar for vista XP 2.3 33.1 days
Xp vista Tema Blax 0.5 Visual Style vista Theme Xp Tema 13.7 days
XP vista Pack 2007 vista resources pack 13.8 days
Xp vista Pack 2007, vista resources pack 19 Jan. 2007 13.9 days
XP to vista 13.8 days
vista Aio 13.9 days
XP to vista 13.9 days
XP to vista 13.9 days
vista Loader 3.0.0.1 21.8 hrs
vista Loader 3.0.0.1 4.2 days
vista Manager 1.48 11.7 days
vista Manager 1.4.8 11.7 days
250 vista Icons 12.5 days
CubeDesktop 1.1.2 XP & vista 13.5 days
Tweak vista 1.0 13.5 days



4. **Counterfeit Software -** Yes, counterfeiters have gotten that good, and some counterfeit software finds its way into the main stream. The industry is finding ways to fight back (such as the edge-to-edge holograms for Office XP, Windows 2000 and Windows XP CD-ROMs).

How to Find Pirated Software in Your Organization

Both Microsoft and the Business Software Alliance provide software management guides and tools that can help you organize and maintain your software inventory. You will get a better handle on what you need to purchase and what you need to eliminate to become compliant. These resources will help you determine if you have purchased genuine or counterfeit software.

As an example, the Microsoft® Software Inventory Analyzer tool generates an inventory of the core Microsoft products installed on your local computer, or throughout a network. The MSIA is built specifically to be a starting point to working with Microsoft’s Software Asset Management (SAM) tools, and to that end, it will work with networks that have 250 computers or less; and will locate only Microsoft software. The results of the scan performed by MSIA are confidential they are not sent to Microsoft. A sample report is shown below.

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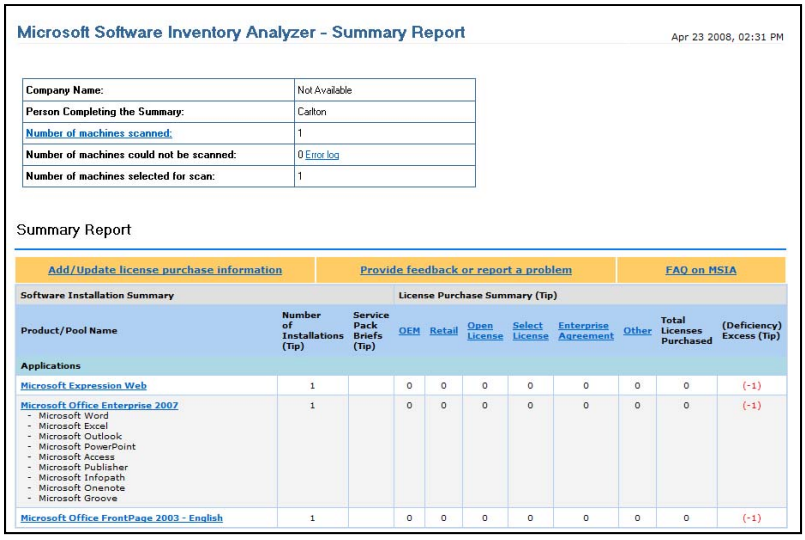


Microsoft Software Inventory Analyzer - Summary Report

Apr 23 2008, 02:31 PM

Company Name:	Not Available
Person Completing the Summary:	Carlton
Number of machines scanned:	1
Number of machines could not be scanned:	0 Error log
Number of machines selected for scan:	1

Summary Report

Add/Update license purchase information | Provide feedback or report a problem | FAQ on MSIA

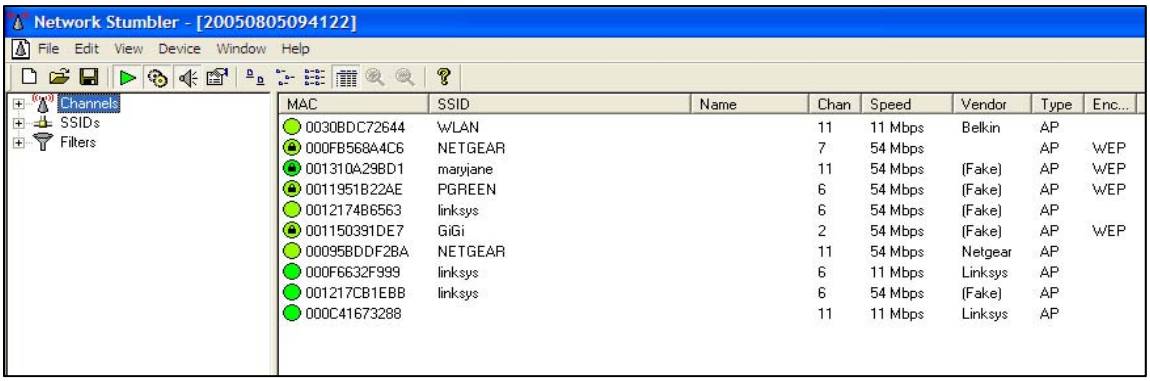
Software Installation Summary			License Purchase Summary (Tip)							
Product/Pool Name	Number of Installations (Tip)	Service Pack Briefs (Tip)	OEM	Retail	Open License	Select License	Enterprise Agreement	Other	Total Licenses Purchased	(Deficiency) Excess (Tip)
Applications										
Microsoft Expression Web	1		0	0	0	0	0	0	0	(-1)
Microsoft Office Enterprise 2007 - Microsoft Word - Microsoft Excel - Microsoft Outlook - Microsoft PowerPoint - Microsoft Access - Microsoft Publisher - Microsoft Infopath - Microsoft Onenote - Microsoft Groove	1		0	0	0	0	0	0	0	(-1)
Microsoft Office FrontPage 2003 - English	1		0	0	0	0	0	0	0	(-1)

You should update and clean up your software inventory at least once a year. Whether you outsource the job to a reseller or IT specialist, or do it in-house, make reviewing your inventory an annual event. Purchase the software and sign up for the licenses you really need, and comply with the terms. Get rid of the rest.

Utilities

Presented below is a list of the top computer utilities that we believe you should consider downloading and using on your own computer.

1. Google Toolbar - Add the power of Google to your Internet Explorer toolbar
2. AVG – Free edition of the comprehensive virus protection from Grisoft.
3. NetStumbler- NetStumbler is a tool for Windows that allows you to detect Wireless LANs using 802.11b, 802.11a and 802.11g. It allows you to: verify that your network is set up the way you intended, find locations with poor coverage in your WLAN, detect other networks that may be causing interference on your network, detect unauthorized "rogue" access points in your workplace, help aim directional antennas for long-haul WLAN links, use it recreationally for WarDriving (wardriving is where you drive around searching for open access wireless networks) For Example:


Network Stumbler - [20050805094122]
File Edit View Device Window Help
Channels
SSIDs
Filters
MAC SSID Name Chan Speed Vendor Type Enc...
0030BDC72644 WLAN 11 11 Mbps Belkin AP
000FB568A4C6 NETGEAR 7 54 Mbps AP WEP
001310A29BD1 maryjane 11 54 Mbps (Fake) AP WEP
0011951B22AE PGREEN 6 54 Mbps (Fake) AP WEP
0012174B6563 linksys 6 54 Mbps (Fake) AP
001150391DE7 GiGi 2 54 Mbps (Fake) AP WEP
00095BDDF2BA NETGEAR 11 54 Mbps Netgear AP
000F6632F999 linksys 6 11 Mbps Linksys AP
001217CB1EBB linksys 6 54 Mbps (Fake) AP
000C41673288 11 11 Mbps Linksys AP

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5. Daemon Tools - DAEMON Tools is a virtual cd/dvd-rom emulator. It is able to emulate nearly all known copy protections on the market today.
6. Microsoft Power Toys for Windows XP – Cornucopia of Microsoft designed extras to enhance XP. Especially useful in this bunch is TweakUI. Among the other utilities is a Virtual Desktop manager, and a utility to switch the Alt-tab function to a more user-friendly graphical version.
7. WinZip - Handle ZIP files with ease with this popular utility
8. WinRAR - Manage RAR and ZIP archives
9. Spybot - Search your hard disk and Registry for threats to your security and privacy
10. ZoneAlarm - Protect your Internet connection from hackers
11. Registry Mechanic - Scan and clean up your registry to improve your system's performance
12. AOL Instant Messenger (AIM) - Communicate instantly with friends or family across the Internet
13. MSN Messenger – Alerts when your chat client friends are online or when you have new Hotmail
14. ICQ Pro 2003b - Seek out friends and colleagues on the Internet and chat in real time
15. Trillian - Chat with all your family, friends, and colleagues on mIRC, AIM, ICQ, MSN, and Yahoo Messenger
16. Download Accelerator Plus - Improve download speeds, resume broken downloads
17. Adobe Acrobat Reader - Read Adobe PDF files on your desktop or on the Web. This should be one of the first utilities you install on a client machine. Otherwise you will never stop getting calls from users who can't open files that a correspondent sent them.
18. DivX Player (with DivX Codec) - Create and watch videos in the popular DivX video format
19. QuickTime - Play MPEG-4 movies with this latest version of Apple's premier media player
20. Microsoft Windows Media Player - Play local and streaming multimedia content
21. RealPlayer - Get the free version of this media player and jukebox from RealNetworks
22. WS_FTP LE - Transfer files over the Internet, and toggle among commonly visited FTP sites
23. Winamp - solid MP3 music playback capabilities and excellent customization options
24. Belarc Advisor - Program for creating a profile of your computer. It fits onto a floppy drive, and will build an html page you can print out with all the vital statistics for your computer. It will show CPU speed, Ram, HD space, OS, Patches, and Licenses. Great for building a detailed file of you company/client's computers.
25. NetworkView - NetworkView is a shareware program that will discover your network, and map it out for you. It will scan ports and attempt to determine what services are running on machines it detects. It also attempts to record the MAC addresses of each computer it detects. Very useful for network admins, especially if you are coming into a network that hasn't been documented properly.
26. PowerPoint Viewer - Used to view Power Point Presentations.
27. RealVNC - A free utility that allows you to remotely connect to someone's machine and view it or control it. This is great for when you have a user with a problem and instead of just trying to walk them through it over the phone. RealVNC is cross platform, which means you can control a W2kmachine from a Linux box and vice versa.

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2010 Computer Technology

Chapter 4

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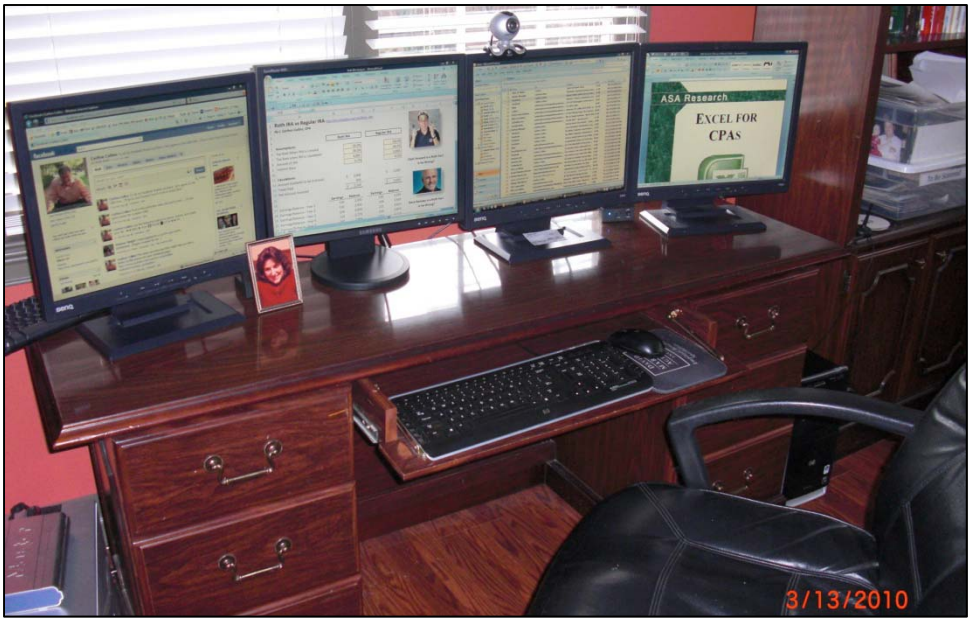
2010 Computer Technology

The arrival of new computer technology makes Office 2003 and Windows XP obsolete. Why? Because Office 2003 only sees up to 1 GB of RAM and can only use one microcomputer processor chip. Likewise, Windows XP can only see 3 GB of RAM and use one microcomputer processor chip. Computers these days are stronger, but in order to take full advantage of that strength, your operating system and applications must be stronger as well. The key factors you need to consider as you purchase a new computer, operating system, and applications are as follows:

1. Do you want a 32 Bit or 64 bit system?
2. How much RAM do you want?
3. How many CPU processors do you want?
4. Which Operating System Do you want?

Example:

As an example, in January 2009, I purchased a desktop computer with 4 processor chips and 8 GBs of RAM. I am running a 64 bit version of the operating system, not an older 32 bit version. The computer is an HP Pavilion Model a6750f. I paid $701 for the computer, and about $94 each for the monitors. To support four monitors, I also added a Matrox M9120 Plus PCIe x16 video card ($289) and a quad video cable ($89). The total cost of my system is $1,455. The computer is lightning fast – it launches Excel in about 1/3rd of a second and loads web pages in about 1/3rd of a second. I routinely have 30 to 50 applications and web pages open at the same time, and I reboot the system about once every two months. Here is a picture:



I also have an older HP 4350 duplexing laser printer with third drawer which I paid $2,000 for 1.4 million pages ago, and you can buy the same printer today for about $389. For color printing and scanning I have an Epson RX680 printer which I paid $228 for. I use Comcast high

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speed Internet which costs $89 a month including DVR television, and I use a Netgear MIMO wireless router which cost me $119. I back up my system online via XCenetric and I also have several 300 to 500 GB USB drives which I backup my files to as well.

The primary software I use on my computer is as follows:

1. Norton Internet Security - $49 a year to protect 3 computers.
2. Microsoft Office Ultimate 2010 beta (free).
3. Adobe Photoshop Elements ($139).
4. Adobe Acrobat ($286)
5. Skype (Free)
6. GoToMyPC ($16/month)

Let's Dig Deeper

Further, to help you better understand the issues at hand, presented below is a summary of today's newer technologies.

32 Bit vs 64 Bit

Just as more highway lanes accommodate more traffic flow, 64-bit computers accommodate more data flow.

64-Bit is 8 Times Faster - Since the early nineties, all computers have been built with a 64-Bit architecture, but only recently have 64-Bit operating systems and applications been embraced. If your computer is more than 2 years old, chances are good that you are still operating in the older 32-Bit environment – which is technically 2 to 8 times slower, depending upon what task your computer is doing.

Micro/Mini/Mainframe - Many years ago, 32-bit computers were commonly referred to as "**micro computers**"; 64-bit computers were commonly referred to as "**mini computers**"(like an

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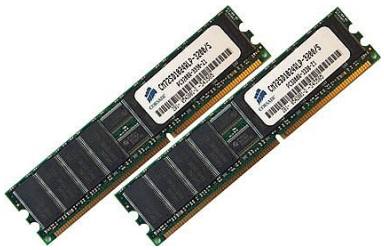
IBM AS/400 or Digital VAX); and 128-bit computers were commonly referred to as "**main frame computers**". All of these computers have always used the same memory chips, same drives, same CPUs, same components, etc – the only difference has been the number of lanes of traffic provided for data flow. Ten years from now it is very likely that your desktop computer will actually be a mainframe.

RAM



How Much RAM? - The old adage these days is you can't be too rich, too thin, or have too much RAM. For the past three decades, stronger computers have needed an increasing amount RAM, and this will not change. When Windows Vista was released in January 2007, almost no one had more than 1 GB of RAM, but Vista actually needed 3GBs of RAM to run well. Microsoft did not tell us this, and we installed Vista on our computers with less than desirable results. Eventually we started installing Vista on computers with 3+GBs of RAM, and found that Vista is a truly great operating system – but by then, the damage to Vista's reputation was wide spread. Since then Microsoft has released Windows System 7 – which is really Vista 2.0, with about 500 minor enhancements thrown in.

As of 2010, the standard for RAM is 4 GBs for laptops and 8 GBs for desktop systems.

RAM Speeds - You should know that RAM comes in different types and speeds, and of course the faster your RAM, the faster your computer will perform. Although "**DDR"** memory chips are still available, in 2008, most memory suppliers started transitioning from "**DDR2**" memory chips to the more efficient and higher density "**DDR3**" technology. Basically DDR2 allows the computer to "fetch" four times more data than DDR chips, and DDR3 chips allow the computer to "fetch" twice as much data as DDR2 memory chips. It's like using a small shovel, bigger shovel, and really big shovel to dig a hole.

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DDR2 is available at 800 and 1066 speeds, while DDR3 reaches speeds from 800 to 1600. Presented below are tables which summarize the clock speeds and data transfer rates for commonly available memory chips.

2 **DR3 Speeds**

Standard name	Memory clock	Cycle time	I/O Bus clock	Data transfers per second	Module name	Peak transfer rate
DDR2-400	100 MHz	10 ns	200 MHz	400 Million	PC2-3200	3200 MB/s
DDR2-533	133 MHz	7.5 ns	266 MHz	533 Million	PC2-4200 PC2-43001	4266 MB/s
DDR2-667	166 MHz	6 ns	333 MHz	667 Million	PC2-5300 PC2-54001	5333 MB/s
DDR2-800	200 MHz	5 ns	400 MHz	800 Million	PC2-6400	6400 MB/s
DDR2-1066	266 MHz	3.75 ns	533 MHz	1066 Million	PC2-8500	8533 MB/s

Source: Wikipedia

DDR3 Speeds

Standard name	Memory clock	Cycle time	I/O Bus clock	Data transfers per second	Module name	Peak transfer rate
DDR3-800	100 MHz	10 ns	400 MHz	800 Million	PC3-6400	6400 MB/s
DDR3-1066	133 MHz	7.5 ns	533 MHz	1066 Million	PC3-8500	8533 MB/s
DDR3-1333	166 MHz	6 ns	667 MHz	1333 Million	PC3-10600	10667 MB/s[4]
DDR3-1600	200 MHz	5 ns	800 MHz	1600 Million	PC3-12800	12800 MB/s

Source: Wikipedia

For Example, Take Kingston - To explain this using easier to understand terms, Kingston offers three classes of memory chips as follows: Value RAM, High speed RAM, and High Performance RAM for gaming. I would recommend that you stay away from the value RAM, and at a minimum purchase high speed RAM instead.

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CPU Processors

Clock Speed Hits Wall - For two decades, computer manufacturers made computers faster primarily by cranking up the clock speed. This worked well until the early 2000's where computer manufacturers hit a wall. Clock speeds of 4.0 Ghz generated more heat than a computer could handle, and the chips basically melted. Manufacturers' tried adding more fans and bigger fans, but the problem persisted. Short of adding chilling towers loaded with liquid nitrogen, manufacturers were forced to find speed elsewhere.

Multiple CPUs to the Rescue - Computer manufacturers turned to adding multiple CPUs to a computer to gain more speed. This is not a new idea, a Cray Super computer has always been a regular computer with a lot of CPUs glued together. For example, in 2009 Cray produced the Xt5 system called "Jaguar". This system has 224,000 CPUs working in tandem and as of Nov 2009 is the fastest computer in the world with a speed of 1.75 petaflops, beating out IBM's Roadrunner 1.04 petaflops mark set in June 2009.

FLOPS is an acronym meaning **FL**oating point **O**perations **P**er **S**econd. Here is your table:

Computer Performance	
Name	**FLOPS**
yottaFLOPS	10^{24}
zettaFLOPS	10^{21}
exaFLOPS	10^{18}
petaFLOPS	10^{15}
teraFLOPS	10^{12}
gigaFLOPS	10^{9}
megaFLOPS	10^{6}
kiloFLOPS	10^{3}

Not So Fast - While a lot of hoopla is splashed on these theoretical calculations, having two CPUs really speeds up your computer, but adding more CPUs has a diminishing return on performance. Here's why:

Not Really Multi-Tasking - Your computer is usually doing three or four things at the same time. For example, it might be performing these tasks all at the same time:

1. Reading the C drive;
2. Writing to the USB drive;
3. Displaying progress on the monitor; and
4. Printing a report

If you have just 1 CPU, your computer spends 1/50th of a second on each of these 4 tasks until all tasks are complete. For example, the CPU will spend 1/50th of a second reading drive C, 1/50th of a second writing to the USB drive D, 1/50th of a second displaying the progress on the monitor, and 1/50th of a second printing the report. It will continue this process and it will appear as though your computer is doing four things at once, but it is not. The CPU is only performing one task at a time. By contrast, if you have four CPUs, then each CPU will perform

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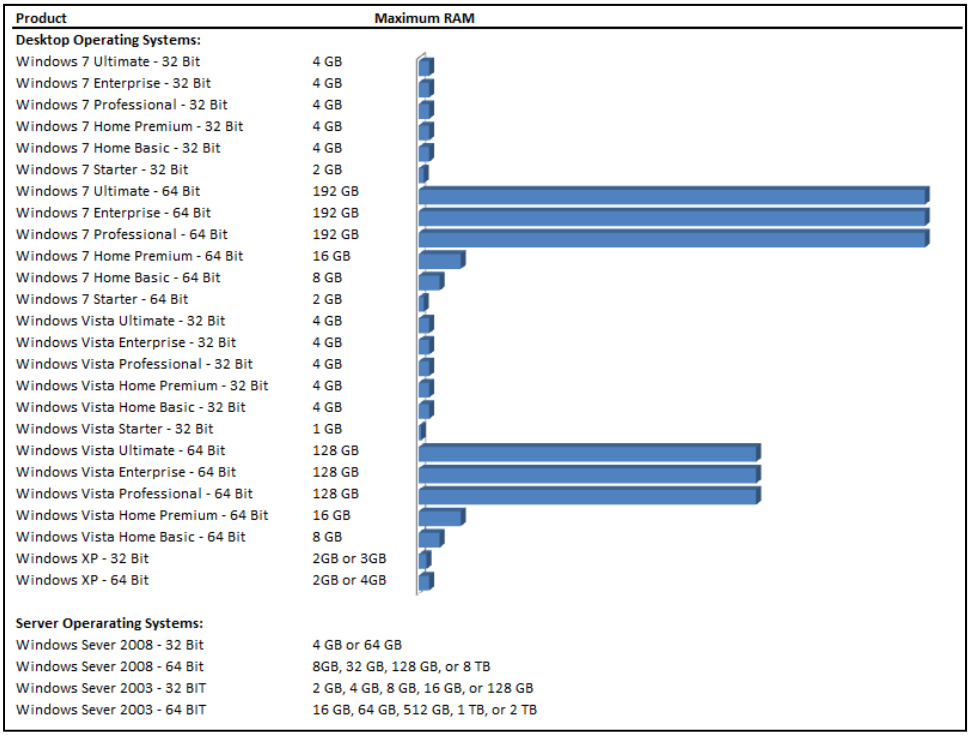
each task at the same time. Hence your computer is exactly four times faster with four CPUs compared to just one CPU.

Really is Multi-Tasking - However, your computer is seldom doing 8 things at once, therefore if you have 8 CPUs, 4 of them are probably just sitting there with nothing to do. I guess that if you frequently had extremely complicated calculations which could be spread across multiple CPUs, then the extra CPUs might come in handy. But most of us use our computers to create word documents, send and read e-mail, and make simple calculations in Excel – so the utility of the Cray Jaguar mentioned above is basically useless in all but the most extreme cases. It does however make for good bragging rights at cocktail parties. The conclusion is that adding an unlimited number of CPUs to your computer is not really practical, but makes for a good show. Right now it seems to make sense to have a computer with at least 4, and perhaps 8 CPUs, and no more.

Operating System

OS - It doesn't help much to have more RAM or CPUs if you operating system doesn't see all of that RAM. That is why it is important to choose an operating system wisely. Windows XP supports just one CPU, Vista supports 64 CPUs and Windows 7 supports up to 256 CPUs. As shown below, different operating systems see different amounts of RAM.



Product	Maximum RAM
Desktop Operating Systems:	
Windows 7 Ultimate - 32 Bit	4 GB
Windows 7 Enterprise - 32 Bit	4 GB
Windows 7 Professional - 32 Bit	4 GB
Windows 7 Home Premium - 32 Bit	4 GB
Windows 7 Home Basic - 32 Bit	4 GB
Windows 7 Starter - 32 Bit	2 GB
Windows 7 Ultimate - 64 Bit	192 GB
Windows 7 Enterprise - 64 Bit	192 GB
Windows 7 Professional - 64 Bit	192 GB
Windows 7 Home Premium - 64 Bit	16 GB
Windows 7 Home Basic - 64 Bit	8 GB
Windows 7 Starter - 64 Bit	2 GB
Windows Vista Ultimate - 32 Bit	4 GB
Windows Vista Enterprise - 32 Bit	4 GB
Windows Vista Professional - 32 Bit	4 GB
Windows Vista Home Premium - 32 Bit	4 GB
Windows Vista Home Basic - 32 Bit	4 GB
Windows Vista Starter - 32 Bit	1 GB
Windows Vista Ultimate - 64 Bit	128 GB
Windows Vista Enterprise - 64 Bit	128 GB
Windows Vista Professional - 64 Bit	128 GB
Windows Vista Home Premium - 64 Bit	16 GB
Windows Vista Home Basic - 64 Bit	8 GB
Windows XP - 32 Bit	2GB or 3GB
Windows XP - 64 Bit	2GB or 4GB
Server Operarating Systems:	
Windows Sever 2008 - 32 Bit	4 GB or 64 GB
Windows Sever 2008 - 64 Bit	8GB, 32 GB, 128 GB, or 8 TB
Windows Sever 2003 - 32 BIT	2 GB, 4 GB, 8 GB, 16 GB, or 128 GB
Windows Sever 2003 - 64 BIT	16 GB, 64 GB, 512 GB, 1 TB, or 2 TB

If you study the table carefully, you will conclude that the 64-bit operating systems are the ones to choose, the 32-Bit versions of these operating systems simply don't see enough RAM.

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Apple versus Microsoft

I Like Apple - I am a fan of Apple computers. I've owned a lot of Apple computers in the past, and in the early nineties I even appeared on a television commercial with Apple President John Scully promnoting Apple solutuions. I own a big chunk of Apple stock and I am no stranger to Apple solutions.

Apple is Not Superior - With that said, over the past two years I have challenged several of my Apple freinds to contests using my $550 HP pavilion laptop against their $2,200 to $2,800 MACbook and MACAir computers. Even though their computers costs more than three of my HP laptops – my HP laptop did everything their computers would do, and did them faster. My Apple bigot friends are usually left stunned and speechless, especially after they start trying to show me graphic and video things that they assume my computer can't do; and I shown them that I can easily do those things.

Complaints from Apple Users - I teach full day hands on Excel courses and typically there is at least one MAC user in the class, and before the day is done, that MAC user is disgruntled because their system is more complicated to use than the Widnows based system the rest of us are using.

Apple is More Proprietaary - Add to the mix that Apple solutions tend to be more proprietary whereas Windows solutions tend to use a more open architecture and cost far less. You can easily make the case for a Windows based computer over a Mac.

Hackers Target Windows More - It is true that there are twelve times more Windows users than MAC users, therefore Windows users are targeted more by hackers and writers of computer viruses; but Apple is still prone to similar attacks and viruses as well.

For accounting systems, there are very few good choices available for the MAC.

The bottom line is that I never buy Apple myself. I figure that you can pay $550 for a faster HP computer with less expensive applications, or $2,200+ for a slower MAC computer with more expensive proprietray applications. For me, this is an easy decision.

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Microsoft Windows Vista

When Windows Vista was released in January 2007, Vista needed 3GBs of RAM to run well, which no one had at the time. Microsoft did not tell us this, and we installed Vista on our computers with less than desirable results. Eventually we started installing Vista on computers with 3+GBs of RAM, and found that Vista is a truly great operating system – but by then, the damage to Vista's reputation was wide spread.

Vista's Bad Rap Explained

Most people cringe by the mere mention of "Vista". I hated it too when it first came out. However within one year, I considered Windows Vista to be the most outstanding operating system the world has ever seen. Here's how the product got such a bad reputation:

1. **Changed the Kernel in the name of Security -** To make Vista far more secure than Windows XP, Microsoft changed the kernel – the core of the Vista operating system. It was an excellent improvement from a security standpoint, but this meant that all applications (like QuickBooks) had to be slightly modified in order to run on Vista. Microsoft asked the various application developers throughout the world to modify their products to launch on Vista's new and improved kernel, but for the first time in Microsoft's history, the company was unsuccessful at getting developers to immediately update their products.

   Tweaking Needed - Therefore when the Vista operating system was launched in January 2007, many applications would not run without a little tweaking. I myself counted 15 applications that would not run on Vista including QuickBooks, MAS 90, and Microsoft's own LiveCam. It was a disaster. However, by September 2007, almost all significant applications were updated to launch on Vista. Unfortunately by then, the damage to Vista's reputation had already been done.

   A Small Tweak is Really a Big Deal - In defense of the application developers, making this slight change seems easy, but it is actually very costly because this change means a new version number. In turn, a new version number means new product packaging, updated help files, new license agreements, updated web sites, updated manuals, new brochures and collateral marketing material, etc. While they are at it, they might as well throw in the other new updates they have been working on as well - right. These vendors simply told Microsoft that they would work in the new code change with their next product release, and that seems reasonable. The problem is that Microsoft had made this request years earlier, and the application developers simply ignored Microsoft's request until Vista actually started shipping.

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2. **RAM Needs -** The second problem was that Vista needs at least 3 GBs of RAM to run well, but Microsoft failed to tell us this because at the time, almost no one had this much RAM – that knowledge would have been a huge barrier to sales.

Vista is Great - Despite the initial problems, in my opinion, Vista is outstanding. In early 2008 I purchased a $599 HP laptop running Vista Professional (64-bit) with two processors & 4 GBs of RAM. The computer is smoking fast – Excel launches in just one second. In January 2009 I purchased a $701 HP desktop running Vista Home Premium (64-Bit) with 4 processors and 8 GBs of RAM. Excel launches in 1/3rd of a second.

Windows 7 is Great - In June 2009 I purchased an HP pavilion running Windows System 7 with 2 CPU processors and 4 GBs of RAM. It too has been outstanding. It is not a well kept secret that Microsoft Windows 7 is really Vista 2.0 with about 500 minor enhancements thrown in; and since I was already a huge fan of Windows Vista, I am also a huge fan of Windows 7.

Vista's New Features

Vista provides many new features. Here is a recap, with my favorite new features underlined.

1. Explorer Improvements
    a. Instant Search - Finds files rapidly.
    b. Navigation Pane - Contains quick links to documents and folders.
    c. Command Bar - Displays tasks appropriate for the files being displayed.
    d. Live Icons - Display thumbnail image of the actual contents of each file.
    e. Details Pane - Provides rich information (metadata) about files.
    f. Preview Pane - Preview a file's contents.
    g. Enhanced title bars, borders, and Address Bar.

2. BitLocker Drive Encryption – Encrypt your entire hard drive.

3. Encrypting File System - User-level file and folder encryption.

4. Fast Sleep and Resume – New sleep power state is quick and saves battery life.

5. Windows Aero Technology
    a. 3-D Flip – 3-dimensional view of open windows for better switching.
    b. Windows Flip – Traditional ALT-TAB flip with thumbnail previews.
    c. Glass – Transparent window edges enforces concept of layered windows.

6. Built-in diagnostics – Built-in troubleshooting, and resolution logic.
    a. Disk Diagnostics.
    b. Monitor Backup activity.
    c. Detects impending disk failures.
    d. Memory Diagnostics.
    e. Network Diagnostics and troubleshooting.
    f. Resource Exhaustion Prevention.

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7. Ease of Access Center - Adjust accessibility settings and manage accessibility programs.
    a. Speech Recognition – Dictation and control your computer with you voice.
    b. Magnifier - Enlarges part of the screen while you work.
    c. Narrator - A text-to-speech program that reads aloud on-screen text.
    d. On-Screen Keyboard - Visual on-screen keyboard.
    e. Keyboard shortcuts - Alternative to the mouse.
    f. Mouse Keys - Use the arrow keys to move the mouse pointer.
    g. Sticky Keys – Helps one armed people press simultaneous keys.
    h. Filter Keys - Ignore keystrokes that occur when key is held down unintentionally.
    i. Visual Notifications - Replaces system sounds with visual cues..
    j. Captions - Animations and video indicate activity happening on your computer.

8. DirectX 10 - heavily enhanced 3-D graphics-rendering capabilities and helps noticeably improve your computer's performance in games and high-end 3-D applications.

9. Internet Explorer 7 in Windows Vista

    a. Tabbed browsing
    b. Protected mode
    c. Dynamic Security Protection
    d. Phishing Filter

10. Other Vista Improvements to:

    a. Network and Sharing Center & Networking
    b. Remote Access &Remote Desktop Connection
    c. Sync Center
    d. Windows Calendar Publishing
    e. Windows Fax and Scan
    f. Windows Mail
    g. Wireless Networking
    h. Photo Gallery
    i. Windows DVD Maker
    j. Windows Media Center
    k. Windows Media Player 11
    l. Windows Movie Maker
    m. Windows Sidebar and Gadgets
    n. Performance
    o. Search Folders
    p. Self-Healing System
    q. SuperFetch
    r. Windows Mobility Center
    s. Windows ReadyBoost
    t. Windows SideShow
    u. Windows Update
    v. Search and Organization
    w. Tablet PC Support

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x. Windows Easy Transfer
y. Windows Meeting Space
z. XPS Documents
aa. Shadow Copy
bb. User Account Controls
cc. Windows Backup and Restore Center
dd. Windows Defender
ee. Windows Firewall
ff. Windows Security Center
gg. Windows Update

What's New in Windows 7?

As mentioned below, Windows 7 is in reality Windows Vista 2.0, but the product name was changed in an effort to shed some of the negative image created by the Vista brand name. There are no significant changes between Vista and Windows 7; however, there are hundreds of small changes and improvements. A list of some of the more prevalent changes and improvements in Windows 7 is presented in bullet form below.

1. **Less Nagging** – The User Account Control in Vista was constantly popping up and hovering over you to nag you constantly: "Are you sure you want to continue?" This pop up box may have our best interests in mind, but it can harass you bonkers in the name of "security". Windows 7 allows you to modify this behavior by reducing the unnecessary and redundant UAC dialogs, making the prompts more informative, and providing users with more control.

2. **Explorer is Better Behaved** - Vista sometimes made the left navigation pane in Windows Explorer a moving target. In Windows 7, the navigation pane stays still, so you no longer risk getting seasick from all the swaying back and forth.

3. **Consolidated Security Messages** - In Windows 7, all the security messages have been consolidated into one icon. When you click the icon, you'll see all messages related to firewall, Windows Defender, Windows Update, etc.

4. **Side-by-side Windows with Auto-size -** Windows 7 includes a cool new feature in which if you drag two windows to each side of the screen, they will automatically size themselves to take up half the screen. Even better, when you drag the window back away from the edge, it returns back to its' original size.

5. **Windows Media Player** - In Windows 7 you can stream the music and videos on one PC in the network to another, and even play back songs from iTunes libraries on other computers.

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6. **Connecting to A Wireless Network is Easier** - Click the Wi-Fi icon in the system tray and select a network from the list, instead of opening up a separate dialog box to make the connection.

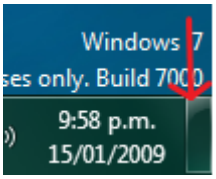
7. **Multi-touch –** Windows 7 now supports multi-touch displays which allows the user to lose the keyboard and instead use their fingers to touch menu selections on the screen to navigate and input data. You might have used this technology on your cell phone. http://msdn.microsoft.com/en-us/magazine/ee336016.aspx

8. **Handwriting Recognition** – When you write on a Multi-Touch screen, handwriting recognition is supported for 19 languages. http://technet.microsoft.com/en-us/library/dd367848(WS.10).aspx

9. **Superbar** - Redesigned Windows Shell with a new taskbar. A few improvements are discussed below. http://www.neowin.net/news/main/09/01/15/windows-7-superbar-overview.

10. **Improved Thumbnails** – Windows 7 taskbar also provides thumbnail previews of the running applications. But with the new superbar, you can now see previews of all running instances of that application. For example, if you have three IE tabs open, you can see previews of all the three tabs and easily switch between them by just hovering or clicking over the IE icon in the taskbar.

11. **Show Desktop** - Provides a preview of all windows open away into glass sheets when you hover over the icon. This faded helps to have a peek of your desktop before you switch. Clicking on the icon switches to your desktop.



12. **Pinning –** Buttons for pinning applications are integrated with the task buttons as well as the various office applications.

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13. **Jump Lists** - Allows easy access to common tasks, recently used applications, and pinned applications.

14. **Customize the Notification Area** - Users can customize which applications show notifications.

15. **Reorder Taskbar Buttons** - According to your likes and dislikes.

16. **Aero Snap** - Automatically maximizes a window when it is dragged to either the top or left/right edges of the screen, similar to Linux. This also allows users to snap documents or files on either side of the screen to compare them. When a user moves windows that are maximized, the system restores their previous state automatically. This functionality is also accomplished with keyboard shortcuts. Unlike in Windows Vista, window borders and the taskbar do not turn opaque when a window is maximized with Windows Aero applied. Instead, they remain translucent. http://windows.microsoft.com/en-US/windows7/products/features/snap

17. **Aero Peek** - Peek gives you the power of X-ray vision, so you can peer past all your open windows straight to the Windows 7 desktop. Simply point to the right edge of the taskbar—and watch open windows instantly turn transparent, revealing your desktop icons and gadgets. (Tip - To quickly reveal a buried window, point to its taskbar thumbnail. Now only that window shows on the desktop.) http://windows.microsoft.com/en-us/windows7/products/features/peek

18. **Aero Shake –** To cut through a cluttered desktop and quickly focus on a single window, just click a pane and give your mouse a shake. Voila! Every open window except that one instantly disappears. Jiggle again—and your windows are back. http://windows.microsoft.com/en-us/windows7/products/features/shake

19. **HomeGroup** – Microsoft's new home networking system. HomeGroup enables you to sharing files and printers on a home network. If you connect two or more PCs running Windows 7, HomeGroup makes it easy to automatically start sharing your music, picture, video, and document libraries with other people in your home. HomeGroup is password-protected and you decide what gets shared and what stays private. You can join a HomeGroup in any edition of Windows 7, but you can only create one in Home Premium, Professional, Ultimate, or Enterprise. http://windows.microsoft.com/en-us/windows7/help/homegroup-from-start-to-finish

20. **Removed Applications -** The classic Start Menu user interface, Windows Ultimate Extras and InkBall.

21. **Windows Live Essentials** - Windows Photo Gallery, Windows Movie Maker, Windows Calendar and Windows Mail are not included with Windows 7, but are instead **available**

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for free in a separate package called Windows Live Essentials which can be found on the Microsoft website.

22. **Support for Virtual Hard Disks** – VHD enables you to run a DOS Windows, Windows XP, Linux, UNIX, or other operating system in a given window. A VHD can be used as the running operating system on designated hardware without any other parent operating system, virtual machine, or hypervisor. http://technet.microsoft.com/en-us/library/dd440864(WS.10).aspx

23. **Improved Performance On Multi-Core Processors** - **Windows 7 can support as many as 256 processor cores compared with 64 for Vista**. Windows 7 also does a better job of distributing tasks across all of your processor cores, so none remain idle when needed. As mentioned previously in this manual, most computer users don't uses numerous applications simultaneously or tackle extremely complex calculations on a regular basis – therefore your computer will rarely need to use more than 8 processor cores. http://news.cnet.com/8301-30685_3-10372095-264.html

24. **Improved Boot Performance** – While Vista computers boot in approximately 30 to 50 seconds, **Windows 7 computers boot in just 15 seconds**.

    http://windows7center.com/news/microsoft-to-improve-boot-performance-in-windows-7-manages-to-boot-in-under-15-seconds-in-the-lab/

25. **DirectAccess** – Gives mobile users seamless access to corporate networks without a need to VPN. More

26. **BranchCache** - Decreases the time branch office users spend waiting to download files across the network. More

27. **Federated Search** - Finds information in remote repositories, including SharePoint sites, with a simple user interface. More

28. **BitLocker and BitLocker To Go** - **Enforce encryption** and backup of recovery keys on PCs and removable drives. More

29. **AppLocker** – You can specify which software is allowed to run on a user's PCs through centrally managed but flexible Group Policies. More

30. **Virtual Desktop Infrastructure (VDI) Optimizations** - Use virtual hard drive (VHD) images to boot a physical PC. More

31. **Multilingual User Interface** - Create a single OS image for deployment to users worldwide. More

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Kernel Improvements:

32. **AVCHD Camera Support** - (Advanced Video Coding High Definition) is a format for the recording and playback of high definition video. The format has been jointly developed by Sony and Panasonic primarily for use in high definition consumer camcorders. AVCHD has been designed to be **compatible with Blu-ray** Disc format and can be used for authoring and distributing of high definition video on DVD media, though not all Blu-ray Disc players are compatible with AVCHD discs.

33. **Universal Video Class 1.1 Support** - The USB Video Class (UVC) driver is a Microsoft-provided AVStream minidriver that provides driver support for USB Video Class devices. When your device uses UVC, you do not need to supply your own driver. Instead, the device works automatically with the system-supplied driver.

34. **Protected Broadcast Driver Architecture (PBDA)** – Basically this enables TV tuner card. Microsoft's new worldwide platform to integrate broadcast TV services into Windows Media Center on a Windows PC. It integrates virtually any free or premium TV service into Windows Media Center, while satisfying the TV industry's requirements for strong content protection in the case of pay TV.

35. **Up To 256 Logical Processors** – **XP supported just 1, and Vista supported 64**.

36. **Timer Coalescing** – Allows processors and chipsets to transition to **very low power usage** levels while the CPU is idle.

37. **Improved Multi-function Device Support** – Better handles combination printer/fax machine/scanner, or web-cams with a built-in microphones.

38. **Windows Installer 5.0** - Provides developers with more control over setting permissions during software installation.

39. **User-Mode Scheduling** - Database servers can benefit from having a thread scheduler in-process. This is because the kernel no longer needs to be involved in context switches between threads, and it obviates the need for a thread pool mechanism as threads can be created and destroyed much more quickly when no kernel context switches are required. (In other words – **it takes the kernel out of the database reading and writing process to speed things up**.)

40. **New FireWire (IEEE 1394)** - Full support for IEEE 1394b with S800, S1600 and S3200 data rates.

41. **Trusted Installer** - Secures some of the core operating system registry keys and prevents other users, including the system, from making changes.

42. **Internet Information Services (IIS)** – **The world's second most popular web server** in terms of overall websites behind the industry leader Apache HTTP Server. As of March

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2010, it served 24.47% of all websites according to Netcraft. The protocols supported in IIS 7 include: FTP, FTPS, SMTP, NNTP, and HTTP/HTTPS.

43. **Disk Partitioning –** As a default Windows 7 creates two partitions: 1. The first for booting, BitLocker and Windows Recovery and 2. The operating system.

44. **Removable Media -** Improvements to **ejecting** just one camera card at the same time (from a single hub) and retain the ports for future use without reboot. Further, removable media is now also **listed under its label, rather than just its drive letter**. Also, Windows 7 Explorer now (by default) only shows ports from a card reader in the My Computer menu **which actually have a card present**.

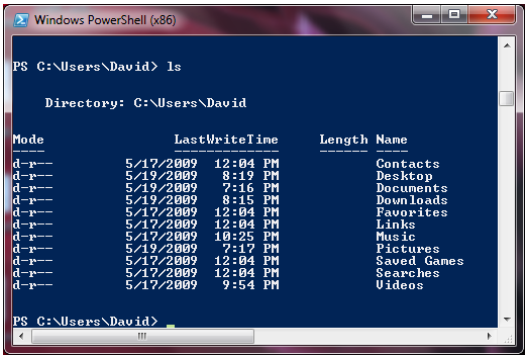
45. **Video Support -** Windows 7 adds playback of media in MP4, MOV, 3GP, AVCHD, ADTS, M4A, and WTV multimedia containers, with native codecs for H.264, MPEG4-SP, ASP/DivX/Xvid, MJPEG, DV, AAC-LC, LPCM and AAC-HE.

46. **Ability To Join A Domain Offline** - This makes it possible to join computers to a domain in locations where there is no connectivity to a corporate network. For example, an organization might need to deploy many virtual machines in a datacenter. Offline domain join makes it possible for the virtual machines to be joined to the domain when they initially start after the installation of the operating system. No additional restart is required to complete the domain join.

47. **Support for Multiple Heterogeneous Graphics Cards** - XP allowed you to mix and match graphics cars but Vista required you to use the same driver for all graphics cards. In Windows 7, you can now once again mix and match graphics cards.

48. **XPS Essentials Pack** - Microsoft has released Version 1.1 of the XPS Essentials Pack, allowing Windows XP and Vista users to view and generate documents in **the .XPS format, Microsoft's alternative to the .PDF format**. Windows 7 already incorporates this functionality.

49. **Windows PowerShell** - Windows PowerShell™ is a command-line shell and scripting language designed especially for system administration. Built on the Microsoft .NET Framework, Windows PowerShell helps IT professionals control and automate the administration of Windows operating systems and of applications that run on Windows.


Windows PowerShell (x86)
PS C:\Users\David> ls
Directory: C:\Users\David
Mode LastWriteTime Length Name
d-r--- 5/17/2009 12:04 PM Contacts
d-r--- 5/19/2009 8:19 PM Desktop
d-r--- 5/19/2009 7:16 PM Documents
d-r--- 5/19/2009 8:15 PM Downloads
d-r--- 5/17/2009 12:04 PM Favorites
d-r--- 5/17/2009 12:04 PM Links
d-r--- 5/17/2009 10:25 PM Music
d-r--- 5/19/2009 7:17 PM Pictures
d-r--- 5/17/2009 12:04 PM Saved Games
d-r--- 5/17/2009 12:04 PM Searches
d-r--- 5/17/2009 9:54 PM Videos
PS C:\Users\David>

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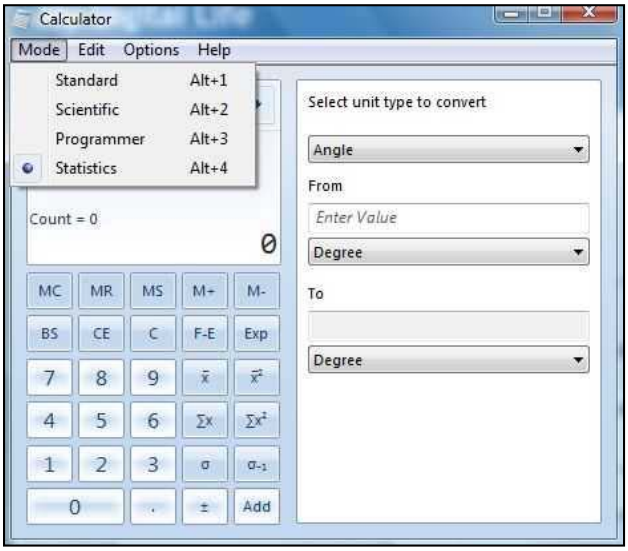
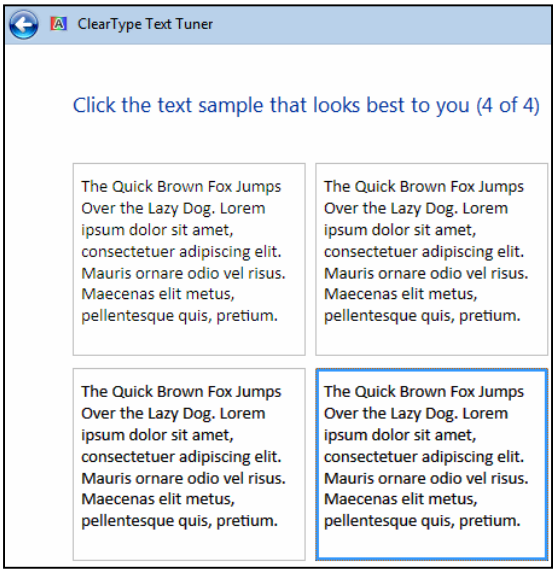
50. **Improved Calculator -** Redesigned Calculator with multiline capabilities including Programmer and Statistics modes along with unit conversion.





51. **ClearType Text Tuner** - Use Clear Type Tuner for the best look on your LCD monitor or laptop screen. **Run 'cttune.exe' from the Start Menu** search box, or go to the Control Panel Display applet, and select Adjust ClearType Text.

52. **Display Color Calibration Wizard** – Helps you set your **display colors just right**. In particular, Photoshop users and video editors will find built in gamma and color balance controls and you are no longer dependant on you graphics cards' control panel. As an added bonus, it works for multiple monitor setups as well.

53. **Gadgets** - Gadgets are small single-purpose applications, or software widgets, that can sit on a Microsoft Windows user's computer desktop, or are hosted on a web page.

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There are **<u>hundreds of gadgets available</u>** and some of the more popular gadgets used today are as follows:

eBay Auction

System Monitor

Shutdown Control

YouTube Downloader

Messenger Gadget

Google Gadget

Digital Frame

Office Tips

Calculator

54. **Recovery** – Windows 7 allows you to create a system repair disc. – To do this click Start; Back Up; Create a System Repair disc.

55. **Troubleshooting** – Microsoft provides a Troubleshooting guide here http://msdn.microsoft.com/en-us/library/dd776530.aspx. It includes links to blogs, support groups, and technical support staff who can help you if needed.

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56. **Workspaces Center** – **Formerly called SharePoint Services**, this allows distant people to **work together** better by improving workflow, reducing shipping and travel costs; and by sharing all of your information through a single location. **Features shared task list with progress, and library check out system for opening documents.**

57. **Location and Other Sensors** - Enables your computer and applications to adapt to the environment. For example, **location sensors (including GPS devices, WWAN radios, and even triangulation technology) your applications and gadgets can know exactly where they are**, enabling them to provide more locally relevant content and functionality. **Ambient light sensors**, can allow your computer to automatically adjust your screen's brightness based on the current lighting conditions.

58. **Credential Manager** - Allows you to **store user names and passwords** that you use to log on to websites or other computers on a network. By storing your credentials, Windows can automatically log you on to websites or other computers. Credentials are saved in special folders on your computer called vaults.

59. **Biometric Devices** – Support for **fingerprint and retina scanner** devices. http://windowsteamblog.com/blogs/windows7/archive/2009/01/08/windows-7-puts-it-s-finger-on-enhanced-biometric-support.aspx

60. **Windows Security Center** - Has been **renamed "Windows Action Center**" and encompasses **both security and maintenance** of the computer.

61. **WIC-Enabled Image Decoders** - Mac-like RAW image viewing which enables raw image thumbnails, previewing and metadata display in Windows Explorer, plus full-size viewing and slideshows in Windows Photo Viewer and Window Media Center.

Improvements for Developers:

62. **New Networking API** - Supports building SOAP-based web services in native code.

63. **Shorten application install times**

64. **Reduced UAC prompts**

65. Simplified development of installation packages

66. **Improved Globalization Support** - New Extended Linguistic Services API.

67. **Support for 30-bit and 48-bit Color depths** – Includes support for the wide color gamut scRGB (which for HDMI 1.3 can be converted and output as xvYCC).

68. **Video Modes Supported** - 16-bit sRGB, 24-bit sRGB, 30-bit sRGB, 30-bit with extended color gamut sRGB, and 48-bit scRGB.

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69. **Better Support For Solid-State Drives** – Including the new TRIM command which allows Windows 7 to identify a solid-state drive uniquely.

70. **USB 3.0** - Microsoft is planning to support USB 3.0 in a subsequent patch, support not being included in the initial release due to delays in the finalization of the standard.[55]

71. **Games Return -** Internet Spades, Internet Backgammon and Internet Checkers, which were removed from Windows Vista, were restored in Windows 7.

72. **Internet Explorer 8** - Included in Windows 7.

73. **Windows Media Player 12** - Included in Windows 7.

74. **Disable Microsoft Products** – Windows 7 allows users to disable Internet Explorer, Windows Media Player, Windows Media Center, Windows Search, and the Windows Gadget Platform.

75. **13 Additional Sound Schemes** - Titled Afternoon, Calligraphy, Characters, Cityscape, Delta, Festival, Garden, Heritage, Landscape, Quirky, Raga, Savanna, and Sonata.

76. **Microsoft Virtual PC** – Is included and allows multiple Windows environments, including Windows XP Mode, to run on the same machine. Windows XP Mode runs Windows XP in a virtual machine and redirects displayed applications running in Windows XP to the Windows 7 desktop. Furthermore, Windows 7 supports the mounting of a virtual hard disk (VHD) as a normal data storage, and the bootloader delivered with Windows 7 can boot the Windows system from a VHD, only in the Professional and Ultimate editions however.

77. **Remote Desktop Protocol (RDP)** - Is enhanced to support real-time multimedia application including video playback and 3D games, thus allowing use of DirectX 10 in remote desktop environments.

Windows 7 - Positive Acceptance in the Marketplace:

- In July 2009, **in only eight hours**, pre-orders of Windows 7 at Amazon.co.uk surpassed the demand Windows Vista had in its first 17 weeks.
- It became the **highest-grossing pre-order in Amazon's history**, surpassing sales of the previous record holder, the seventh Harry Potter book.
- After 36 hours, 64-bit versions of Windows 7 Professional and Ultimate editions **sold out in Japan**.
- **Two weeks after its release, it was announced that its market share had surpassed that of Snow Leopard**, released two months previously as the most recent update to Apple's Mac OS X operating system.

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- According to Net Applications, **Windows 7 reached a 4% market share in less than three weeks**. In comparison, it took Windows Vista seven months to reach the same mark.
- As of March 4, 2010, Microsoft announced that they had **sold more than 90 million Windows 7 licenses**.
- Reviews of Windows 7 were mostly positive, praising its usability when compared to its predecessor, Windows Vista.
- **CNET** gave Windows 7 Home Premium a rating of 4.5 out of 5 stars, stating that it "is more than what Vista should have been, it's where Microsoft needed to go".
- **PC Magazine** rated it a 4 out of 5 saying that Windows 7 is a "big improvement" over Windows Vista, with fewer compatibility problems, a retooled taskbar, simpler home networking and faster start-up.
- **Maximum PC** gave Windows 7 a rating of 9 out of 10 and called Windows 7 a "massive leap forward" in usability and security, and praised the new Taskbar as "worth the price of admission alone".
- **PC World** called Windows 7 a "worthy successor" to Windows XP and said that speed benchmarks showed Windows 7 to be slightly faster than Windows Vista.
- PC World also named Windows 7 one of the best products of the year.
- In its review of Windows 7, Engadget said that Microsoft has taken a "strong step forward" with Windows 7 and reported that speed is one of Windows 7's major selling points particularly for the netbook sets.
- **LAPTOP Magazine** gave Windows 7 a rating of 4 out of 5 stars and said that Windows 7 makes computing more intuitive, offered better overall performance including a "modest to dramatic" increase in battery life on laptop computers.
- **Techradar** gave it a 5 star rating calling it the best version of Windows yet.
- The New York Times, USA Today, The Wall Street Journal, and The Telegraph also gave Windows 7 favorable reviews.

Windows 7 - Negative Acceptance in the Marketplace:

- Some Vista Ultimate users have expressed concerns over **Windows 7 pricing** and upgrade options. Windows Vista Ultimate users wanting to upgrade from Windows Vista to Windows 7 must either pay $219.99 to upgrade to Windows 7 Ultimate or perform a clean install, which requires them to reinstall all of their programs.

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Desktop Market Share As Of January 2010 *(source: Wikipedia)*

Windows XP -	66.31%
Windows Vista -	17.39%
Windows 7 -	7.51%
Windows 2000 -	0.58%
Windows NT -	0.11%
Windows 98 -	0.08%
Windows CE -	0.06%
Windows Me -	0.05%
Non-Windows -	7.98%
Total Windows -	**92.02%**
Mac OS X	5.90%
Linux	1.12%
Other	1.96%

Microsoft Security Essentials (MSE)

http://www.microsoft.com/security_essentials/

Microsoft Security Essentials (MSE) (previously codenamed Morro) is a **free antivirus** software created by Microsoft that provides protection against viruses, spyware, rootkits, and trojans for Windows XP (x86), Windows Vista, and Windows 7 (both x86 and x64). MSE replaces Windows Live OneCare, a commercial subscription-based antivirus service and the free Windows Defender, which only protected users from adware and spyware. It is geared for consumer use, unlike **Microsoft's upcoming enterprise-oriented product Microsoft Forefront**.

Symantec and McAfee, two competing antivirus vendors, responded by claiming that MSE is not as good as their own software. AVG Technologies viewed MSE positively, stating it reinforced the company's ideal of free antivirus software. ARS Technica reviewed it positively, citing its organized interface, low resource usage, and its status as freeware.

Microsoft Forefront Client Security

http://technet.microsoft.com/en-us/bb738009.aspx

Forefront Client Security provides malware protection for business desktops, laptops, and server operating systems. Microsoft claims the product offers simplified administration through central management, critical visibility into threats and vulnerabilities, and provides support for Windows Server 2008 roles. Product Pricing:

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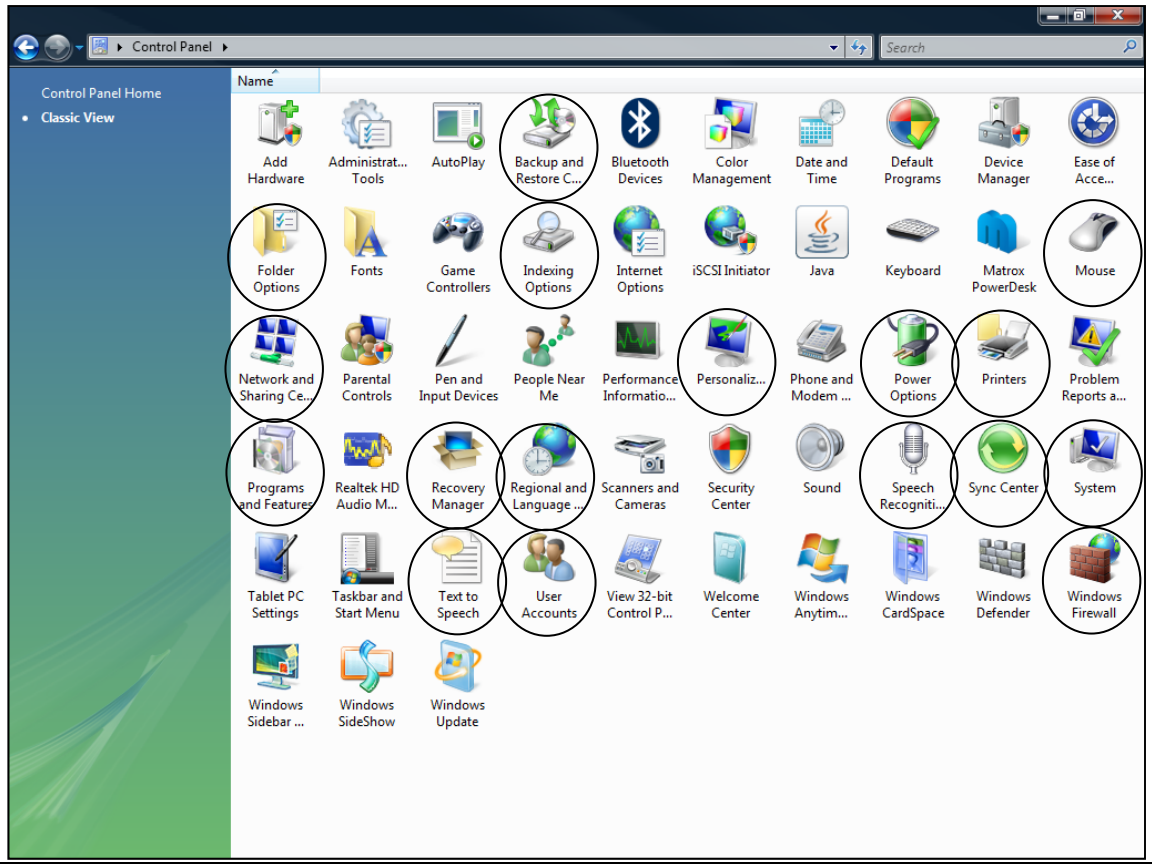
Component	Estimated Prices	Description
Microsoft Forefront Client Security Agent	$12.72 US per user or per device, per year	The Microsoft Forefront Client Security Agent is a malware protection agent that is installed on business desktops, laptops, and servers that provides real-time protection from and scheduled scanning for viruses, spyware, and other threats.
Microsoft Forefront Client Security Management Console with SQL Server 2005 Enterprise Edition* **Restricted for use with Forefront Client Security*	$2,468 US per server, per year	The Microsoft Forefront Client Security Management Console enables administrators to easily manage the malware protection agents, to update agents with the latest protection signatures, and to generate reports and alerts on the security status of their environment. *A single installation of the Management Console can typically handle up to 10,000 clients.*

Component	Estimated Price	Description
Microsoft Forefront Client Security Management Console *This version of the Management Console does not include SQL Server 2005*	$98 US per server, per year	The Microsoft Forefront Client Security Management Console enables administrators to easily manage the malware protection agents, to update agents with the latest protection signatures, and to generate reports and alerts on the security status of their environment. *A single installation of the Management Console can typically handle up to 10,000 clients.*

Windows Control Panel Settings

Windows 7's Control Panel contains 53 tools that allow you to configure and control the way Windows 7 looks and operates. You can view these tools in their newer categorized view, or if you are old school like me and prefer the older look and feel, click the Classic View option to display Control Panel as follows:



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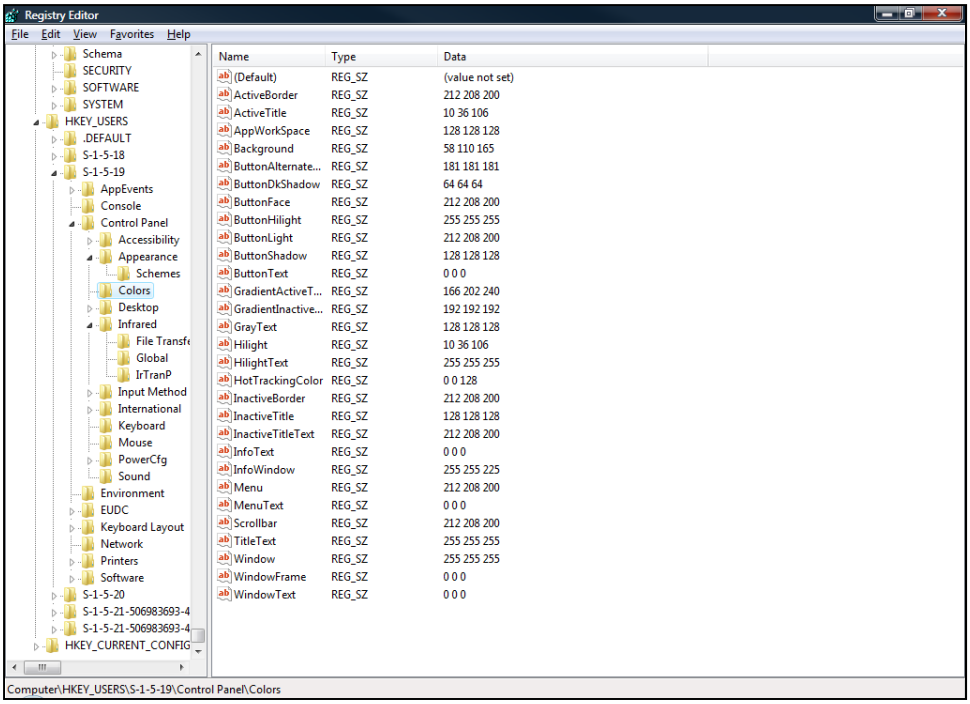
While all of these tools have utility, I've circled those tools which I would like to discuss in class.

Before delving into Control Panel, it is helpful to understand that Windows 7 saves all of your setting adjustments in the Registry. You can view your Registry by typing REGEDIT in the Start Search Box. This is a rather cryptic set of folders and honestly, Microsoft does not want you messing around with the Registry unless you really know what you are doing. Here is what the Registry looks likes:



What I want you to know is that as you make adjustments in Control Panel, those adjustments are recorded in the registry, usually with a series of "0" or "1" answers to setting questions. If you wanted to, you could accelerate your mouse by adjusting the Registry settings – but why? The graphical Control Panel tool is much easier to use, and it adjusts the Registry for you.

This understanding is helpful in terms of backing up or restoring the registry. When you create a Restore Point using the System Restore option, all it really does is make a copy of the Registry. Thereafter, if your computer or an application stops working correctly, or if you get a virus, you can restore a previous Restore Point which simply copies the older Registry settings back to you Registry.

Control Panel Materials

I have prepared an extensive set of materials that walks you through the Control Panel tools, but they were too voluminous to reprint here. To access these materials please use the following link:

www.ASAResearch.com/web/controlpanel.htm

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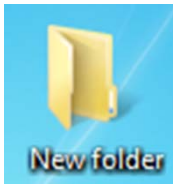
God Mode

(Apologies to anyone who might be offended by this use of the Word God, I did not come up with this terminology)

Windows 7 has many settings to adjust how Windows operates. The majority of these settings adjustments must be made using the Windows Control Panel. Although Control Panel does a good job of organizing the various tools, it can be a little difficult to use because often you must toggle back in forth between windows. There is a way that gives you all adjustment options in one place… and it's called Windows 7 "God Mode".

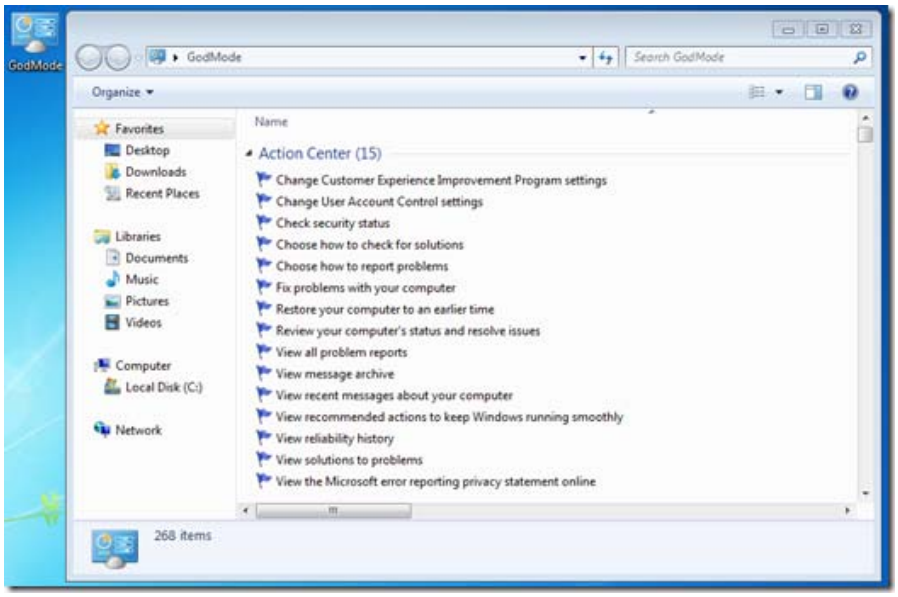


To set up God Mode, first create a new folder on your desktop. Next, change the name of the New folder by right clicking on the folder, select **Properties** from the drop down menu, under the General tab select the name of the folder text box and type in the following code to change the name of the folder:

GodMode.{ED7BA470-8E54-465E-825C-99712043E01C}

Now, the folder should have changed from the default blank folder icon to a Control Panel looking icon.

Thereafter, when you double click on the "God Mode" icon to open it, you will notice that it looks similar to the Control Panel window, with all options placed in single list. This allows you to view all the Windows 7 settings in one spot as shown below.



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Hardware

CHAPTER 5

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Desktop Computers

Windows XP Computers for $150 (as of July 2010)

Today, the cost of a good Widnows XP desktop computer starts at around $140. For example, shown beow is a Widnows XP computer for sale from "Computers For Less" as of July 2010 for just $139.95. But don't waste your money, Widnows XP is old hat and you should throw any money at an XP system.

Dell Dimension 4700 Desktop
Make it Great with Office 2010
Office 2010
DIM47MIN - 2.8GHz Intel Pentium 4, 256MB, 40GB, CD-ROM, Windows XP
The Dimension 4700 powered by Intel? Pentium? 4 processors with HT...
Computers 4 Less
Seller Not Rated
As low as
$139.95
See It

Windows 7 Computers for about $400 (as of July 2010)

Windows 7 is better; here are several example computers priced near $400.

Search Results				
Description:	IdeaCentre K300 Mini-Tower Desktop	Veriton M265-ED6300C Desktop	ThinkCentre Desktop Computer - 1 x Pentium Dual-core E5300 2.60 GHz - Tower	Aspire X1301-U1302 Desktop Computer - 1 x Athlon II X2 215 2.70 GHz
Manufacturer:	Lenovo	Acer	Lenovo	Acer
Lowest Price:	$350.06	$380.00	$423.01	$405.19
User Reviews:	Not Rated	Not Rated	Not Rated	Not Rated
Rebates:	(None)	(None)	(None)	(None)
Quick Glance				
Computer Type:	Tower (Mini)	Mini-tower	Tower	Desktop (Low Profile)
Operating System:	Microsoft Windows 7 Home Premium	Windows 7 Professional	Windows 7 Professional	Windows 7 Home Premium x64
Processor Type:	Intel Pentium Dual-Core	Intel Pentium Dual-core	Intel Pentium Dual-core	AMD Athlon II X2
Included Drives:	DVD+-RW DL	N/A	DVD-Writer DVD±R/±RW	DVD-Writer DVD-RAM/±R/±RW
Included Devices:	Keyboard, Mouse	Keyboard Yes, Mouse	N/A	Keyboard Yes, Mouse
Video Chipset:	ATI Radeon HD 4650	Intel Graphics Media Accelerator 3100	N/A	nVIDIA GeForce 9200
Hard Drive Size:	320000	160000	320000	750000
Installed Memory:	3000	3000	3000	4000
Processor Speed:	2600	2800	2600	2700
Processor				
Number of Installed Processors:	1	1	1	1
Cache Size:	2 MB	2 MB	2 MB	1 MB
Processor Speed:	2.6 GHz	2.80 GHz	2.60 GHz	2.70 GHz
Processor Class:	Intel Pentium Dual-Core	Intel Pentium Dual-core	Intel Pentium Dual-core	AMD Athlon II X2
Memory				
Memory Socket:	DIMM	N/A	N/A	DIMM
Memory Technology:	DDR3	DDR2 SDRAM	N/A	DDR2 SDRAM
Max System Memory:	8 GB	4 GB	N/A	4 GB

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Really Nice Windows 7 Computers for about $600 (as of July 2010)

Search Results				
Description:	Pavilion p6402f BK275AA Desktop Computer - 1 x Pentium E5400 2.70 GHz	Aspire M3300-U1332 Desktop Computer - 1 x Phenom II X4 810 2.60 GHz - Tower	Inspiron 560 Mini-Tower Desktop - Customizable	Pavilion p6520f WW640AA Desktop Computer - 1 x Athlon II X4 635 2.90 GHz
Manufacturer:	HP (Hewlett-Packard)	Acer	Dell	HP (Hewlett-Packard)
Lowest Price:	$559.99	$572.18	$714.00	$563.79
User Reviews:	Not Rated	Not Rated	Not Rated	Not Rated
Rebates:	(None)	(None)	(None)	(None)
Quick Glance				
Operating System:	Windows 7 Home Premium x64	Windows 7 Home Premium x64	Microsoft Windows 7 Home Premium	Windows 7 Home Premium x64
Processor Type:	Intel Pentium	AMD Phenom II X4	Intel Core 2 Duo	AMD Athlon II X4
Included Drives:	DVD-Writer DVD-RAM/±R/±RW	DVD-Writer DVD-RAM/±R/±RW	DVD+-RW	DVD-Writer DVD-RAM/±R/±RW
Included Devices:	Keyboard Yes, Mouse	Keyboard Yes, Mouse	Keyboard, Mouse	Keyboard Yes, Mouse
Hard Drive Size:	750000	1000000	640000	1000000
Installed Memory:	6000	6000	6000	6000
Processor Speed:	2700	2600	2930	2900
Computer Type:	N/A	Tower	Tower (Mini)	N/A
Video Chipset:	N/A	ATi Radeon HD 3200	NVIDIA GeForce 310	N/A
Processor				
Number of Installed Processors:	1	1	1	1
Cache Size:	2 MB	2 MB	3 MB	2 MB
Processor Speed:	2.70 GHz	2.60 GHz	2.93 GHz	2.90 GHz
Processor Class:	Intel Pentium	AMD Phenom II X4	Intel Core 2 Duo	AMD Athlon II X4
Memory				
Memory Socket:	N/A	N/A	DIMM	N/A
Memory Technology:	DDR3 SDRAM	DDR3 SDRAM	DDR3	DDR3 SDRAM
Max System Memory:	8 GB	8 GB	8 GB	16 GB
Installed Memory:	6 GB	6 GB	6 GB	6 GB

You could pay more, and in many cases you should. However many CPAs seem to be completely unaware of how low prices have dropped for desktop computers. The worldwide market for computers is as follows (Number of computers shipped in millions of units):

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
139.9M	135.9M	136.2M	147.5M	189M	208M	239M	264M	290M	306M

Brands - There are 9 major computer manufacturers and a boat load of lesser-known clone manufacturers. The following table lists these companies in order of brand loyalty and customer satisfaction as determined by MetaFacts, Inc. Dell not only leads the brand loyalty ranking, but Dell also leads in worldwide sales with 16.9% market share compared to 15.6% for Hewlett Packard. Howver, when it comes to selling to CPAs, Dell rules. I have surveyed thousands of CPAs and these efforts reveal that CPAs buy Dell 54% of the time.

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My Brand of Computer:

Dell	54%
HP	15%
Compaq	6%
IBM	9%
Gateway	3%
Other:	13%

However in 2009, the industry as a whole choose Dell less than 15% of the time. Acer has 18.8% of the market share while HP commands 24.1% market share. The chart below shows a few statistics for PC sales in 2008/2009.

Table 1: Notebook and Mini-Note Shipments and Growth (millions)

Brand		Q1'08 Shipments	Q4'08 Shipments	Q1'09 Shipments	Q/Q Growth	Y/Y Growth
HP	Mini-Note	0.0	0.9	0.7	-22%	
	Notebook PC*	6.5	7.4	6.6	-11%	2%
	Total	6.5	8.3	7.3	-12%	12%
Acer	Mini-Note	0.0	2.2	1.8	-18%	
	Notebook PC*	4.5	4.3	3.9	-9%	-13%
	Total	4.5	6.5	5.7	-12%	27%
Dell	Mini-Note	0.0	0.4	0.4	0%	
	Notebook PC*	4.7	4.8	3.9	-19%	-17%
	Total	4.7	5.2	4.3	-17%	-9%
Toshiba	Mini-Note	0.0	0.3	0.2	-33%	
	Notebook PC*	2.9	3.0	2.8	-7%	-3%
	Total	2.9	3.3	3.0	-9%	3%
Lenovo	Mini-Note	0.0	0.4	0.2	-50%	
	Notebook PC*	2.3	1.7	1.9	12%	-17%
	Total	2.3	2.1	2.1	0%	-9%
Asus	Mini-Note	0.3	1.7	0.9	-47%	200%
	Notebook PC*	1.0	1.5	0.8	-47%	-20%
	Total	1.3	3.2	1.7	-47%	31%
Others	Mini-Note	0.6	2.1	1.7	-19%	183%
	Notebook PC*	8.3	9.5	4.4	-54%	-47%
	Total	8.9	11.6	6.1	-47%	-31%
Total	Mini-Note	0.9	8.0	5.9	-26%	556%
	Notebook PC*	30.2	32.2	24.4	-24%	-19%
	Total	31.1	40.2	30.3	-25%	-3%

Source: DisplaySearch *Quarterly Notebook PC Shipment and Forecast Report*
*In this table, the notebook PC shipments exclude mini-note shipments. The total row for each brand includes both mini-notes and notebook PCs.

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Computer Features

When selecting a computer system, there are so many options (ram, drives, monitors, ports, etc) that the number of possible configurations run into the trillions. For our purposes, we will explore those computer features which are most important to the selection of a good computer system.

CPU – As discussed in the CPU section of this manual, the most important component in your computer is the processor chips or CPUs (central processing unit). Your primary options include Intel or AMD chips, and for many years AMD has been the fast er performing, lower cost alternative. We don't really care which one you get, but we do recommend that you get at least four CPU chips for your desktop computer and at least Two CPU chips for your laptop computers. (P*lease refer to the chapter on CPUs for details*).

RAM - More RAM translates to a faster computer. Here is what we want you to know about RAM:

1. Today's new adage is you can't be too rich, too thin, or have too much RAM.
2. Actually, at some point, more RAM does little, and actually increases overhead, thus slowing your computer a bit.
3. I recommend a minimum of 3 GBs of ram in today's computer. Vista needs at least 3 GBs of RAM to run well while Windows 7 can squeak by with 2 GBs. My main computer has 8 GBs of RAM.
4. Yes, you can add RAM to a computer by yourself, just turn off the computer and plug it in.
5. If the computer is more than 2 years old, don't waste your money, buy a new computer instead.
6. The best place to shop for RAM is www.dealram.com where you can compare prices from hundreds of vendors.
7. Sample RAM Pricing for 1 gigabyte of RAM - $40 to $60 for value RAM, $60 to $90 for faster RAM.
8. Some RAM is faster than other RAM, ranging from 266mhz to 533mhz. You can expect to pay almost double the price for the fastest RAM compared to the slowest RAM – is the extra speed worth the extra cost? Probably not. Purchasing 400MHz RAM for a 333MHz system bus or vice versa results in a great deal of wasted performance. Our recommendation is to buy value RAM, not high performance RAM.

Hard Drive – No matter how big of a hard drive you buy today, chances are good that it will be too small within a few years. After all, that has been the case for the past 20 years and there is no reason to expect that this trend won't continue. Here are some reasons why you should expect to need ever-increasing amounts of hard drive space in the future:

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1. Applications continue to grow bigger
2. Volumes of documentation are now installed on you computer, rather than included as a printed manual.
3. Collecting music, picture and viseo files has grown more popular, taking up several GBs of hard drive space on a typical computer.
4. Many people are starting to collect videos and movies, each of which can require more than 1GB of hard drive space. These videos are not just entertainment movies, but instructional videos, sales videos, and even videos documenting movies and conferences.

Here are a few points that we want you to know about hard drives:

1. **Size** - Today hard drives come in sizes ranging from 200 gigabytes to 2 terabytes, but look in the 250-500GB range for the pricing/storeage space sweet spot, which should be about $.20/GB or less.

2. **IDE SATA or SCSI** - The most popular hard drives primarily come in two types of technologies, IDE or SCSI. Over the years these two technologies have advanced and you will now hear terms such as Fast SCSI, Ultra2 Wide SCSI, Extended IDE, etc. The difference is how these drives connect to the computer – and since SCSI has the faster connection, it delivers the faster hard drive. The next generation of hard drives will feature Serial ATA connections and most new computers will come with SATA hard drives rather than the old IDE standard. These SATA drives interface faster and require less power than either SCSI or IDE drives. What's more-the drives do away with cumbersome IDE ribbon cables instead transferring data through thin ribbon connections smaller than a USB cable.

4. **Fibre** - Fibre Channel hard drives connect to the computer using fiber optic connections, and these drives are even faster, and of course, more expensive.

5. **Removable** - Removable hard drives such as microdrives and USB drives have emerged, and while these drives technologies are impressive, their price/performance does not match IDE, SCS or Fibre. These drives are priced form $80 to $300 for microdrives, and $5 to $90 for USB.

6. **Rotation** - The faster the hard drive platters turn or rotate, the more quickly and efficiently the heads can access the data and make it available to the system. Current rotational speeds for hard drives range from 5400rpm in ultra low cost systems, to 7200rpm in standard and some high-end setups, to speeds of 15,000 rpm used in only the most extreme desktops for enhanced program performance and gaming. Higher levels of heat and noise constitute the trade-offs associated with faster hard drives but precautions like damping and adequate ventilation can mitigate the side effects.

7. **Buffer-size** - Buffer-size makes up the other lesser known hard drive specification. The buffer basically serves as another source of RAM used for the contents of the hard drive. Data stored in Buffer RAM transfers faster than data read through the heads of the

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drive. Therefore a larger buffer yields a significantly faster hard drive and data access. Most consumer hard drives ship with 2MB buffers however faster more powerful models with 8MB buffers generally cost only a fraction more for considerably increased performance.

8. **Hot Swappable** – Some hard drives are hot swappable, which means that you can install and remove them without turning off the computer. This feat is achieved by making the length of the electrical prong longer than the other prongs. Thus when you plug in a hot swappable hard drive, it gets power first, and then the data connections are made. You only need this in mission critical situations where you don't want to have to turn off the computer to replace the hard drive.

9. **Raid** – Raid arrays are a strategy in which data is written across 2 or more separate hard drives (aka data stripping). Check sums are calculated as data is written. In the future, if one drive goes bad, the system can compare the data on the other drives against the check sums, and figure out what data is missing on the damaged drive. In effect, the hard drive heals itself.

10. **Disk Mirroring** – You can insert two drives into a computer, and have them mirror one another. In the future, if one hard drive fails, the other drive kicks in automatically and on the fly - and the users are not affected by the hard drive failure.

11. **Server Mirroring** – Disk mirroring is not very popular because this technology does not protect against failure of other computer components. Instead, you can implement two identical servers, and have them mirror one another. In the future, if one server fails for any reason, the other server kicks in automatically and on the fly - and the users are not affected by the server failure. You can see why this is better than disk mirroring and the cost is not that much greater.

12. **Optical drives** - Optical drives such as CDs, RW-CDs, and DVDs offer the ability to record 700MB of data for CDs and nearly 5GB of data for DVDs. While this represents an immense breakthrough in data transfer and portability, optical drives are far too slow to compete with IDE or SCSI as a hard drive alternative.

13. **Two DVD Standards** - A universal writing standard for DVDs does not presently exist (do you remember VHS versus Betamax?). Currently, two types of media and writing processes (+ and -) fight for the 1st place slot though a clear victory is not in sight. To ensure maximum compatibility, the most effective and generally accepted solution requires the purchase of a dual format DVD writer which supports both the DVD+R and DVD-R formats.

14. **Can you Install an Internal Hard Drive Yourself?** – RAM is easy to install, but internal hard drives represent different challenges. Replacing a hard drive is fairly straightforward, but adding a second drive is not. Most computers today do not offer the cable connections inside to support a new hard drive, and you must therefore figure out which type of cable you need, remove an old cable, install the new cable, and make the connections. You must also figure out and install the brackets as well. Yes, you could

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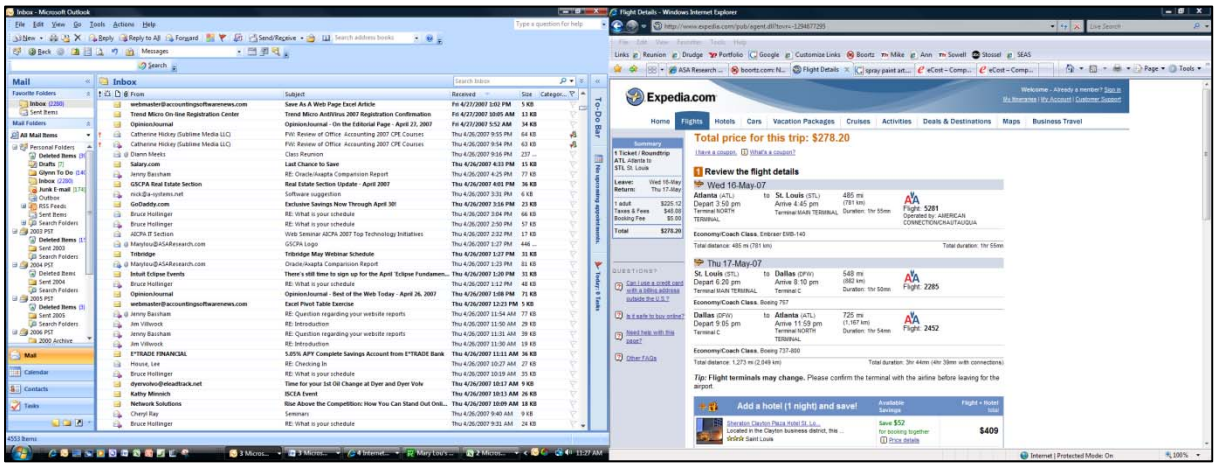
figure it out, but by the time you do figure it out, you will probably waste many hours. Our advice is to have an internal hard drive installed.

Graphics Cards

In addition to advances in memory, the last year has also seen advances in graphics card technology including the replacement of the AGP graphics standard with the newer PCI-Express or PCIE. While the new card standard can improve speed and performance for high-end applications like games or advanced multimedia, the average user has no need for such hardware. However, harkening back to the adage two is better than one, everyone can benefit from multiple monitors. Graphics cards with multiple monitor outputs are common place and can be had for as little as $40. Depending on your monitors connection, you may need to buy an adapter such as a DVI-I, DVI-II, S-Video, or USB to VGA adapter for about $10 to use your cards DVI and VGA ports when you really have 2 VGA monitors. Why bother you ask? Well the productivity savings when multiple monitors are configured correctly, more than pay for the additional hardware cost.

Imagine being able to run multiple programs full screen without minimizing or switching applications. Shown below is a screenshot from a multiple monitor setup where one display is utilizing the tabbed browsing feature of Mozilla's Firefox and the other is displaying the users open Outlook Today Screen.


Inbox - Microsoft Outlook
Flight Details - Windows Internet Explorer
Expedia.com
Total price for this trip: $278.20
Review the flight details
Add a hotel (1 night) and save!

Better still, truly cumbersome applications can become easier to deal with using multiple monitors. Ever feel like you were scrolling through Excel for days? Multiple monitors can double your viewable area and allow you to see more of the screen at once. Some programs even offer increased functionality when used with multiple monitors. For example, Microsoft PowerPoint allows the user to view a slideshow on one display while editing and making changes to the presentation on the other. Check it out.

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Replacement Period

Many CPAs hold on to their computers far too long. We recommend that you retire your primary computer after 3 years for the following reasons:

- Older computers are slower, and hence your employees are not as efficient.
- Older computers are not designed to run newer operating systems and applications, and therefore they crash and hang far more often.
- The average cost of repairing a computer now exceeds the cost of a new computer.
- Computer warranties typically expire after 36 months.

Disposal

You can dispose of a computer by giving it to your employee to take home. Your employee may be very happy with this, and you won't have to dispose of it otherwise. Data and software applications should be removed before disposal, formatting the hard drive is your best bet. Many charities no longer accept computer donations.

It is estimated that 45 million computers become obsolete each year. This situation creates two problems – protecting information and disposing of your old computers. Most organizations store their old computers, which serve as backup equipment in case newer computers break down. These old computers often sit in storage well beyond their potential useful life. At some point, a decision must be made about disposal of this equipment. Continuing to store it is often not a viable option, because it eventually takes up a considerable amount of space. The least desirable option is to throw old computers in the garbage. Not only are there the potential liabilities and disposal costs imposed by state and federal environmental agencies, there is also the possibility of someone removing hard drives and recovering sensitive data. To combat these problems, you should follow a good disposal strategy.

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Where to Buy

A little shopping around can easily save you $200, $300 or even $1,000 or more. You owe it to yourself to shop around. Here is our standard shopping approach to buying a computer for the lowest cost:

1. **CDW** - Start at CDW. Use this web site to get a feel for the brand, size, speed, and price of computer you want. This is a good site for comparing current systems. But don't buy your computer here – while CDW prices are fairly decent, you can save another 10% to 20% buy shopping further. www.cdw.com

    a. **Print –** Print out each and every potential system you think might meet your needs. Staple the pages together for each system and stack them.
    b. **Eliminate –** Compare and eliminate obvious poor choices by placing a big X over those features and systems that don't measure up.

2. **Pricescan** – Take your selections to Pricescan and look for the best price/delivery deals you can find. www.pricescan.com

    a. **Print –** Print out each and every potential system you think might meet your needs. Staple the pages together for each system and stack them.
    b. **Eliminate –** Compare and eliminate obvious poor choices by placing a big X over those features and systems that don't measure up.

3. **Price Grabber** - Take your selections to Pricegrabber and look for the best price/delivery deals you can find. This site offers an excellent selection tool which narrows your list of potential solutions by feature criteria you specify. www.pricegrabber.com

    a. **Print –** Print out each and every potential system you think might meet your needs. Staple the pages together for each system and stack them.
    b. **Eliminate –** Compare and eliminate obvious poor choices by placing a big X over those features and systems that don't measure up.

4. **IBM** – Visit the IBM web site and look for systems comparable to the best ones you've already found. Be sure to look for rebates, online coupons and special deals as well. Also search for refurbished computer systems and consider these options. Usually, IBM computers are good quality but as of 2007, IBM's systems seem to be amoung the best deals going when it comes to high powered notebook systems. www.IBM.com

    a. **Print –** Print out each and every potential system you think might meet your needs. Staple the pages together for each system and stack them.
    b. **Eliminate –** Compare and eliminate obvious poor choices by placing a big X over those features and systems that don't measure up.

5. **Dell** – Visit the Dell web site and look for systems comparable to the best ones you've already found. Be sure to look for rebates, online coupons and special deals as well. Also search for refurbished computer systems and consider these options. Usually, an

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equivelant Dell computer costs far more than the computers you've already found through PriceScan and PriceGrabber. www.dell.com

a. **Print –** Print out each and every potential system you think might meet your needs. Staple the pages together for each system and stack them.
b. **Eliminate –** Compare and eliminate obvious poor choices by placing a big X over those features and systems that don't measure up.

6. **HP** - Visit the HP web site and look for systems comparable to the best ones you've already found. Be sure to look for rebates, online coupons and special deals as well. Also search for refurbished computer systems and consider these options. www.hp.com

   a. **Print –** Print out each and every potential system you think might meet your needs. Staple the pages together for each system and stack them.
   b. **Eliminate –** Compare and eliminate obvious poor choices by placing a big X over those features and systems that don't measure up.

7. **Continue Shopping Online** - Depending upon how much time and effort you want to expend, continue to identify potential systems and compare them to your list of printed options by also visiting IBM, eCOST, The Nerds, Tech Bargains, Pricewatch, PC Connection, Buy.com, Staples, etc.

8. **Shop Stores** - You are now armed with enough ammunition to shop a neighborhood store such as OfficeMax, Office Depot, or Staples. Sometimes (albeit rarely) these places have a deal that beats an internet price. Many stores, such as Circuit City, will match any advertised price, and that might be an avenue you want to take. SAM's Club also provides some good deals from time to time.

9. **Avoid Most Retail Computer Stores** – It is a general rule that retail computer stores such as CompUSA and Circuit City are very overpriced. In all my years it has been my experience that buying from CompUSA and other retail computer stores will cost you at least 20% more, if not a great deal more. I have nothing against CompUSA and I visit their showrooms often just to see what's out there.

10. **MicroCenter beats CompUSA and Circuit City** – If you must shop retial, try Micro Center. It has been my experience that Micro Center has decent prices and far more knowledgeable sales representatives.

11. **Seeking Advice** - Several Internet sites such as CNET.com, Amazon.com, and even PCmag.com offer A-Lists, reviews, and user forums. I read these reviews for the information, but I sometimes have doubts about the systems they recommend most – ie: are they influenced by marketing money to recommend those products?.

12. **Advanced Web Shopping** – If you want to take some more time to search for those really fantastic bargains, we suggest you visit Tech Bargains and Fat Wallet. These two sites list hundreds of internet specials daily, but you need to be ready to react fast –

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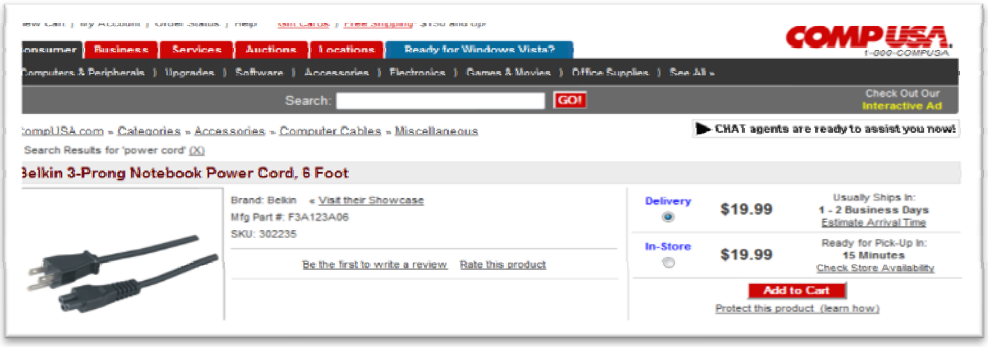
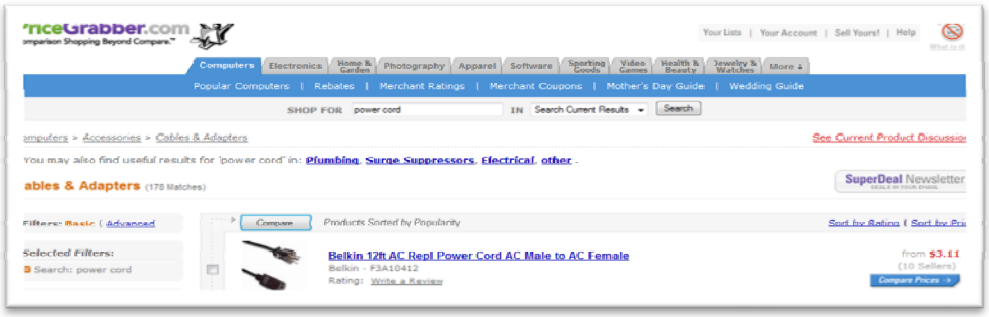
these deals don't hang around long (sometimes an hour or less) www.techbargains.com & www.fatwallet.com.





Wow, I just noticed that the PriceGrabber cord is 12 feet long and sells for just $3.11 while the CompUSA cord is only 6 feet long and sells for $19.95. Once again we see that shopping around online can save you big bucks.

Conclusion - Computers have reshaped our world. Whole industries have fallen while others have emerged based solely on computers. Today, companies that don't keep up, will most likely fail. You should make sure that you, and everyone of your employees is using a fast, solid, dependable computer. You should replace all computers at least every three years. You should buy computers that are about two steps below the top technologies. You can save a bundle by shopping computers on the Internet.

Recommendations

1. Purchase a system with 250GB hard drive storage minimum, 7200 RPM, if in doubt-buy larger, extra space is cheap.
2. Add RAM until system contains 3 GB RAM minimum, 4 GB RAM or more for good measure
3. Buy a system with two or more microcomputer processors.
4. Decide whether you need basic Integrated graphics or an add-on 512MB graphics card for Windows Vista, or heaven forbid, games/video
5. Make sure that your system includes an Ethernet card
6. Make sure you get 2 optical drives (preferred) or at least one writable drive: CDR/W or DVD-R/RW
7. Count the USB 2.0 ports (data transfer and peripheral standard) front and back, 2 front and 4 back is satisfactory

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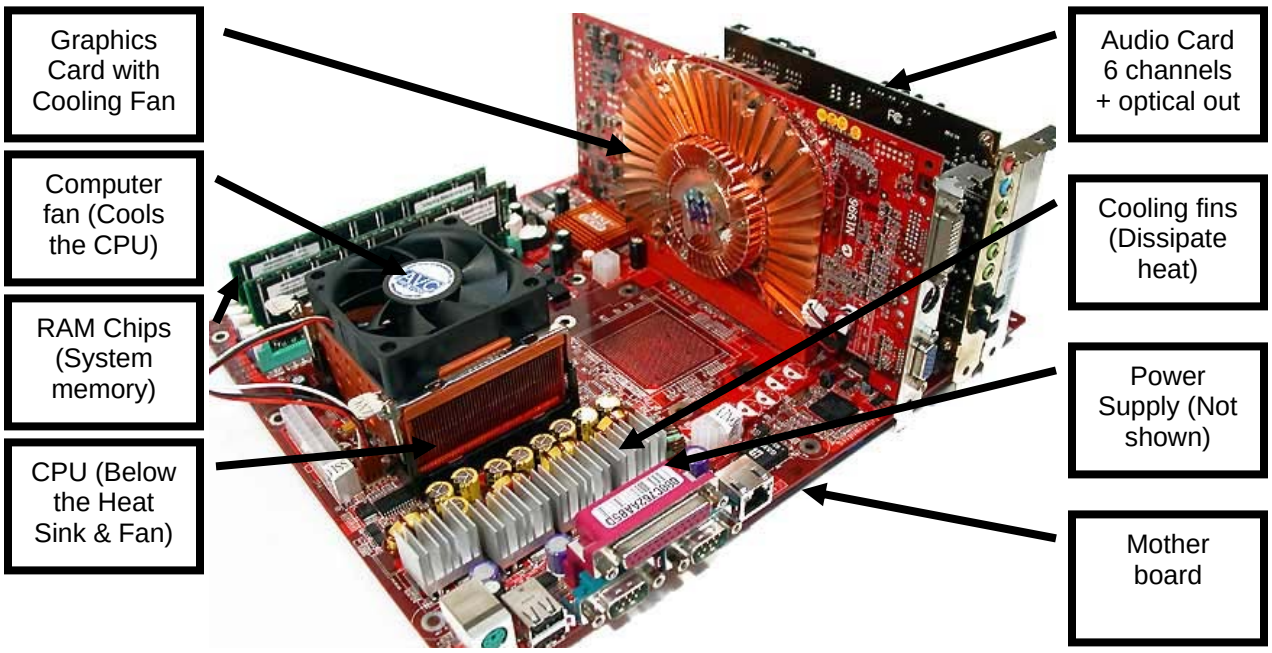
8. Look for bundled specials like monitors, printers and digital cameras, but do not sacrifice system specs to get a “freebie”

CPUs

There are at least 11 major companies world wide that produce processing CPUs (central processing Units a.k.a. “chips”), as follows:

	Chip Price	Market CAP as of May 07	Stock Ticker	Location
AMD	66.00	2.17B	AMD	Sunny Vale, CA
Hitachi	64.77	11.16B	HIT	Tokyo
Infineon	15.16	1.71B	IFX	Munich
Intel	69.00	86.94B	INTC	Santa Clara, CA
Motorola	16.48	12.66B	MOT	Schaumburg, IL
NEC	7.49	5.45B	NIPNY	Tokyo
Philips	n/a	n/a	Private	Netherlands
Samsung	n/a	n/a	Private	South Korea
STMicroelectronics	26.7	5.87B	STM	Geneva
Texas Instrument	30.78	12.39B	TXN	Dallas, TX
Toshiba	4.05	n/a	TOSBF.PK	Tokyo

Many of these chip companies produce CPUs for specific markets. For example, STMicroelectronics makes chips primarily for the automotive and industrial equipment markets, while Samsung’s chips are produced for the consumer electronics market (TVs, DVDs, digital cameras, etc). The most popular chips used in desktop and notebook computers are the Pentium, Athlon, and Celeron chips. Intel Pentium and Celeron chips lead the way with a commanding 81.7% share of the PC Processor market, followed by AMD with just 16.6% market share.


Graphics Card with Cooling Fan
Computer fan (Cools the CPU)
RAM Chips (System memory)
CPU (Below the Heat Sink & Fan)
Audio Card 6 channels + optical out
Cooling fins (Dissipate heat)
Power Supply (Not shown)
Mother board

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Mice

Optical Wheel Mice

If you are not already using a laser mouse or optical wheel mouse, you should be. Users of traditional roller ball mice that try an optical mouse never go back. The roller ball mice pick up dirt a nd hair and as a result, do not always roll smoothly. Optical mice always roll smoothly, and since they do not pick up dirt and hair, they never need cleaning. Optical mice glide with little friction across virtually any surface. They shine a red light emitting diode at any flat surface which when reflected back allows the mouse to gauge the movement of the device and guide the pointer/cursor accordingly. Unlike conventional mice, optical devices do not contain moving parts and cannot be worn down or caked with dust over time.

Wheel – The wheel (or scroll button) allows the user to easily scroll up and down a web page, word document or spreadsheet with the roll of a finger. This process is easier and more efficient than clicking and grabbing the scroll bar on the right hand side of a window. Once again, after you have experienced the scroll button, you will never be satisfied with a scroll-less mouse again.

Wireless Mice

For prices starting at about $45, you can purchase a wireless version of any mouse. A wireless mouse can significantly improve user comfort because a user's positioning of the mouse is unlimited. This is a good point, but some older wireless mice have a slight time delay between hand movement and pointer movement – a condition which can be irritating. Also, without the tethered cable, it is easier to lose the mouse just like losing the remote control on your television set. Wireless mice need batteries and they weigh more. Many people think that a wireless mouse is worth the extra cost; however for the reasons mentioned, let us conclude that the decision to go wireless is more of a personal preference issue.

I recommend that you choose a wireless mouse that uses radio frequency (RF) technology as opposed to infrared. Infrared requires line of sight to work properly, whereas RF does not.

A Few Mouse Pointers

1. **Plugging in Your Mouse -** Today's mice can plug into the older PS/2 port or the USB port. When it comes to performance, it does not matter which port you use, but we recommend that you use the PS/2 port, even if you have to employ the use of a USB/PS/2 port adapter. Most mice include this adapter. The reason is that this keeps your USB ports free for other devices.

2. **Extra Mouse Buttons** – Some mice offer extra buttons on the sides, or multiple scroll buttons on top. These are fancy additions to be sure, but we find that most people do not use these extra buttons – therefore don't bother.

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3. **Ergonomic Shape** – Many mice have an ergonomic shape that allows you hand to fit more comfortably on the mouse. If you have discomfort in your arm, you should give one of these ergonomically designed mice a try – they do allow you to tilt your arm to a more comfortable and natural position. An ergonomically shaped keyboard and mouse are shown below.

4. **Miniature Mice** – Some manufacturers make miniature mice that are about half the size as regular mice. I find that these miniature mice fit much better in a laptop bag and are far better for traveling. I highly recommend them.

Monitors

Flat Panel or CRT?

It's not even a contest. Flat panel monitors are by far superior to Cathode Ray Tube or CRT monitors for many reasons. Most notably, flat panel monitors are easier on the eyes and allow employees to work comfortably for longer periods of time. Flat panel monitors also take up less desk space and do not emit the type of low level radiation that has caused some CRT manufacturers to advise pregnant women not to sit in front of a CRT for extended periods of time. You will pay about three times as much for a flat panel monitor, but we think this is worth the money. For what it's worth, sales of CRT monitors are projected to remain steady over the next several years, primarily due to the lower cost. But all other things being equal, a flat panel LCD is better.

Key Monitor Features

Other than size and price, there are not too many monitor features to evaluate. Here are the few features that we think are most important.

1. **Contrast Ratio** – The contrast ratios on flat panel LCD monitors range from 250:1 to 750:1. The current minimum standard which we recommend is 600:1.
2. **Resolution** – The resolution provided by flat panel LCD monitors varies, but generally ranges up to 1280 by 1024.

Making Your Monitor Last Five Years

While I replace my computer every year, I always keep my monitor for 5 years. There are two key benefits to this strategy as follows: This strategy makes it more affordable to replace the computer each year. Since the monitor represents a significant portion of the cost, my replacement dollars are minimized because I need not secure a new monitor each year. Also, this strategy allows me to better justify purchasing a more expensive monitor. Since I will use it for a long period of time, I can spend a few more hundred dollars to get just the one I want. Here is a picture of my current monitor – nice huh? *(I'm kidding)*

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Monitor Brands

The following table summarizes sales of LCD monitors by brand name. There appears to be no clear leader and the research we uncovered does not suggest that brand really matters in the LCD market.

Table 1: Q1'03 LCD Monitor Supplier Market Share and Growth

	Rank		Share	
Brand	Q4'02	Q1'03	Q4'02	Q1'03
Dell	1	1	14.7%	16.0%
Samsung	2	2	9.6%	8.9%
HP	4	3	5.0%	7.5%
NEC-Mitsubishi	3	4	5.0%	6.7%
LGE	7	5	4.1%	4.7%
ViewSonic	6	6	4.2%	4.5%
Fujitsu	5	7	4.4%	4.2%
Philips	8	8	3.8%	3.4%
Proview	14	9	2.3%	3.4%
Sony	9	10	3.7%	3.3%
Others			43.1%	37.3%

Graphics cards and monitors

Any monitor you purchase will need a graphics card to connect to in your computer, and in addition to advances in memory, the last year has also seen advances in graphics card technology including the replacement of the AGP graphics standard with the newer PCI-Express or PCIE. While the new card standard can improve speed and performance for high-end applications like games or advanced multimedia, the average user has no need for such hardware. However, harkening back to the adage two is better than one, everyone can benefit from multiple monitors. Graphics cards with multiple monitor outputs are common place and can be had for as little as $40. Depending on your monitors connection, you may need to buy an adapter such as a DVI to VGA adapter for about $10 to use your cards DVI and VGA ports when you really have 2 VGA monitors. Why bother you ask? Well the productivity savings when multiple monitors are configured correctly, more than pay for the additional hardware cost.

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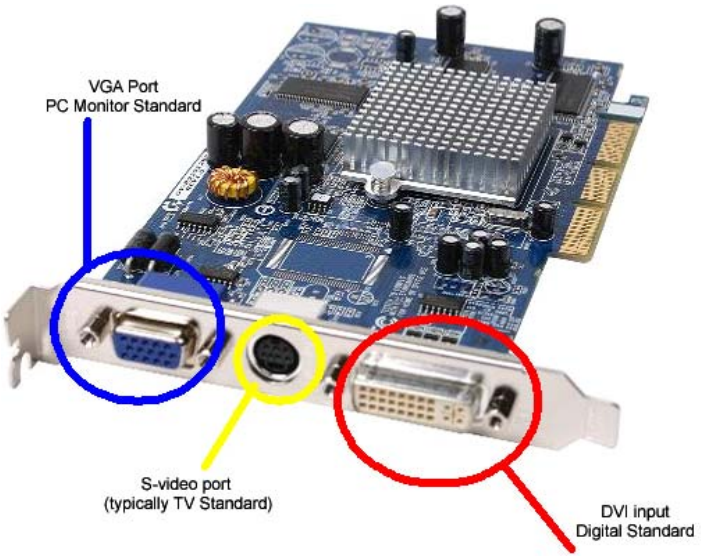
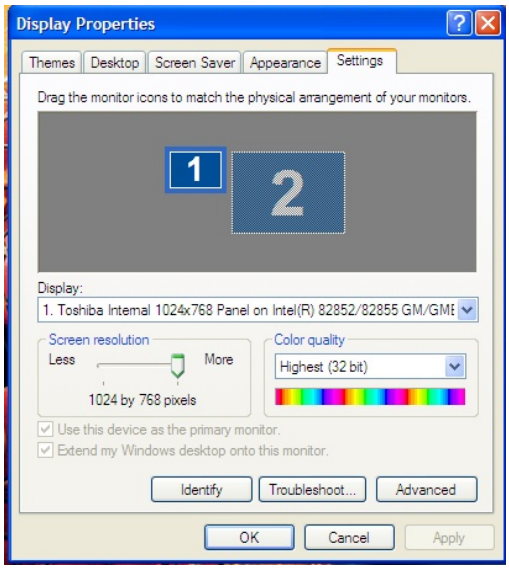


We recommend multiple monitors for increased productivity and lessened eye strain. Your computer may already have a graphics card which supports multiple monitors. If so all you might need is an adapter and a quick selection change in the Windows Display Properties. There are 3 types of connections you are likely to find on a graphics or video card. Match the card connectors with the output type that your monitor supports and alter the display properties settings accordingly.



Notebook Computers

According to ComputerWorld, a subsidiary company of the International Data Group, May 2003 marked the first time that sales figures of notebook computers surpassed sales of desktop systems in U.S. history. Gartner Incorporated released research findings indicating that notebook sales actually propelled the computer industry toward its second consecutive quarter of double-digit growth in the 3rd quarter of 2003. Clearly the notebook market in the U.S. and worldwide seems far from stagnation or even a slow-down. With Wi-Fi hotspots integrated into hotels, bookstores,

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coffee shops, and restaurants, the proposition of mobile computing gains a stronger foothold on a daily basis. Consumers can choose among countless options in the notebook PC market as manufacturers now utilize both desktop grade processors as well as scaled-back more efficient notebook engineered CPUs in their various models. Notebook sizes and form factors continue to evolve along multiple paths offering users a choice between *ultraportable* freedom, *desktop replacement* workhorses, and a compromise of platforms creating a *thin and light* yet very capable notebook PC. More recently, the Tablet PC entered the market as a niche product with ample room for expansion and category growth. Each category supports a typical feature set with certain manufacturers often offering upgrades or cost-cutting measures.

Processors/RAM

Choosing a processor for a notebook computer can actually prove more difficult than choosing one for a desktop PC mainly because of the wide variety of options and configurations. Notebook users not only have the option of selecting from numerous notebook processor types from Intel, AMD, and a handful of other manufacturers' proprietary brands, but also actual desktop processors which offer the full computing power of a desktop system in a much more portable package.

Processors in notebook computers each attack their computing tasks a little differently. For example, a low voltage processor like the Mobile Pentium 4, or Centrino, seeks to use only the necessary amount of power to complete a given task and therefore it can scale back its processor when not in use to conserve battery life. The desktop version of the Pentium 4 works with much the same vigor and force when applied to the notebook platform, especially when equipped with Intel's Hyperthreading Technology which emulates a dual processor for amplified output. Value based processors like the Intel Celeron trim hundreds of dollars from the price of a new notebook by utilizing a smaller cache (256Kb rather than 512Kb) and fewer performance enhancing features that some users may never take advantage of.

The AMD processors can offer the best of both worlds, incorporating value with 2-3GHz+ of processing power designed to outrun Intel's chips in similar price categories. Furthermore, consumers must try to avoid one common misconception involving Intel processors. Due to the plethora of names and CPU architectures currently supported by Intel, confusion about specifications runs rampant. In an extremely basic sense, the Pentium M with its low power consumption properties and efficient architecture can actually outperform Pentium 4M CPUs with a higher clock speed. For this reason, Centrino systems, a brand containing 3 specified Intel devices, (M CPU, 855 chipset, and Intel Pro 2100 Wireless chip) which run at roughly 1.6GHz should actually be compared with performance and output from a Pentium 4M 2.4GHz machine.

Notebook Displays

The display or LCD screen of a notebook computer greatly contributes to its functionality as well as the PC's overall size. Notebooks use a thin film transistor screen, or TFT, which shares little in common with desktop based CRT monitors. Aside from the ability to multisync and output a variety of screen resolutions, CRT monitors do not outperform LCDs in any other

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specification or category. LCDs require less power and give off less heat. They also triumph over CRTs in that they cause far less eye fatigue from prolonged or even short-term usage. Cost and native resolution form the two negative side effects of notebook screens and desktop based LCD displays. In general, LCDs do cost more to produce, though those costs diminished steadily and rapidly over the last year. The native resolution of a TFT display presents one problem few users fully understand. Unlike a CRT which has the ability to adjust to display resolutions from say 800 x 600 all the way to 1600 x 1200 pixels, TFT displays exhibit the best quality and actually should not waver from their native resolution. Setting an LCD display or notebook screen to run below its native resolution, whether through interpolation or by using only a portion of the available pixels can result in blurry, difficult to read images. Because the native resolution forms the foundation for a notebook's display regardless of what graphics card may be in place, consumers must understand what resolutions the different screen specifications refer to.

Networking

The days of dial-up's dominance vanished long ago. Now businesses and homes alike run local area networks both wired and wireless for resource and connection sharing. All new notebooks incorporate an integrated Ethernet connection right on the motherboard, much like desktop systems so that users may simply plug in a standard cat5 cable to connect to their router/hub and ultimately the internet. However, wireless connectivity continues as a highly sought after feature among notebook computer users. Of the three standards, 802.11g is backwards compatible with 802.11b, but 802.11a uses an entirely different frequency range (5GHz as opposed to 2.4GHz). Each standard excels and lags in different areas. Regardless of the standard used in your home or office, several options exist for wireless connectivity in notebooks. Currently, many notebooks offer integrated wireless much like they support integrated wired Ethernet. In the case of wireless, a mini-PCI card containing the necessary chipset and hardware connects to a receiver antenna inside your computer for wireless communication. Though many reputable vendors offer mini-PCI cards for about $50 with which you can self install integrated wireless, PCMCIA cards present a simpler solution. Installation of this simple device bestows wireless connectivity on any notebook computer as the card itself contains the antenna and all necessary hardware for $30 to $70.

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Mini-PCI card

USB Network card

While the new Draft-N or MIMO wireless standard has emerged, computer manufacturers will be slow to adopt the devices for the sole reason that the standard in fact has no standards and was released as a stepping stone while the 802.11n standard is still pending. For now Intel's A/B/G card or any Wireless-G equipment will suffice.

Size and Weight and Length?

Unlike their desktop counterparts, notebook computers do not necessarily boil down to specifications. They do not easily compare based on processor speeds, amounts of RAM, and hard drive sizes alone. Notebooks actually classify in one of many broad lifestyles or usage patterns that led to their overall design. The negative impact of this classification resides mainly in the fact that a notebook remains roughly how you bought it for the duration of its brief life cycle. Of course you can expand the RAM, add a mini-PCI Wi-Fi card, or even a high-end graphics card for games, but extensive customizations and upgrades happen less often in notebooks than in their less portable desktop brothers. To combat the limited availability and practicality of system upgrades, many notebook add-ons come in the form of external peripherals like floppy disk drives or port replicators. The benefits of this arrangement based on overall purpose stems from consumers' ability to graft the desired components onto a system type that easily integrates with their lifestyle or business plan. Some users find that a powerful notebook can address all their computing needs. Others place the utmost importance on portability and the ability to conduct business efficiently from an infinite number of locations. Select businesses and consumers may find that the most efficient way to conduct field operations, adjustments, and observations requires the use of a simpler interface than a keyboard allows, opting instead for the interactive writing surface of a Tablet PC or slate design. Basically, traditional notebook computers breakdown into complex categories based on screen size, weight, general processing power, and battery life. The length of time a notebook can operate on battery power significantly contributes to its functionality as a mobile computer

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system. Though different manufacturers may incorporate advanced features to make their systems more appealing, the basic categories follow a general specification pattern so as to clearly distinguish their intended role.

Warranty Plans

Extended manufacturer warranty coverage for notebook computers requires careful deliberation. Buying an established brand from a reputable dealer should provide all the necessary insurance against device failure and defective parts. However, notebook PCs notoriously live shorter lives than their desktop counterparts, which themselves need replacement roughly every three years. Notebooks rarely remain stationary; therefore, they run additional risks of getting into accidents or becoming dented or damaged. The added strain to which many users subject their notebooks necessitates the purchase of additional warranty coverage, preferably from the manufacturer at the time of purchase. Often two to three years of additional service costs only $300 to $400. Pay attention however, to the terms of service and whether they specify on-site support or require you to mail in your notebook for repair.

Ports and Docking

In order to make notebook computers more ergonomic and functional in areas of prolonged use many consumers decide to utilize a docking station or port replicator. The lighter and more mobile notebooks often only contain a few USB ports, possibly one Firewire port, a D-sub or VGA port for external monitor display, but rarely any legacy ports like a PS2 or serial port for mice or a parallel port for older printers. Make sure the notebook you choose has enough ports to support all your devices. Otherwise you may need to purchase a docking station or port replicator. The smallest notebooks or ultraportables may not contain a CD or DVD optical drive. These units require the use of an additional “media slice” containing the extra drive, ports, and often room for a spare battery. Some medium to large sized notebooks offer the unique ability to exchange drives and high capacity batteries through the use of modular bays. In these systems battery life may improve by an additional 3 hours or more, however; portability suffers as the dense batteries increase the overall system weight.

Drives

As in desktops, consumers should consider notebook hard drives essentially etched in stone. Though some notebooks may support two hard drive bays, and nearly all allow the consumer to add additional external storage, software for upgrading the size of a hard drive as well as the physical switch itself limits the practicality of such a procedure. Users should therefore initially purchase more than an adequate amount of hard drive space or prepare to store non-essential data on removable media like writable CDs, DVDs, or USB flash drives. Whatever your choice, storage capacity remains basically fixed. Optical drives on the other hand require a bit more consideration when dealing with notebook computers. Due to the limited amount of drive bays, sometimes 1 or none, allocation of space in notebook PCs deserves

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thoughtful planning. Due to the waning popularity and support of floppy disks, many notebooks no longer contain floppy drives as standard, though modular bays for extra batteries or optical drives often accommodate quick and easy insertion of a specialized floppy drive. Other options include the addition of an external floppy drive attached via USB cable or some other standard. A CD-Rom drive is a must for adding programs, games, or any large data or files. The ability to write to CDs can obviously come in handy when distributing reports, presentations, and generally sharing information. Furthermore, a relatively small notebook that can also serve as a portable DVD player in essence becomes two remarkable devices in one. The reconciliation of all these devices and purposes among competing needs and resources once posed a conflict. Now however, many notebooks offer a DVD/CDRW combo drive standard or offer one as additional equipment. The power to maintain mobility yet play CDs, DVDs, and author writable CDs as well remains a miracle of the modern notebook computer. High-end notebooks now offer the same peripheral options as desktop systems in that some optionally include DVD writable drives as well.

Tablet PCs

There are 207 tablet PCs in the marketplace today offered by Gateway, Acer, ViewSonic, Panasonic, Toshiba, HP, Motion Computing, Lenovo/IBM, and more. These devices are priced from about $300 to $5,000. The Tablet PC industry was 150,000 units strong in 2002 and 425,000 units in 2003. IDC projects 2004 sales at 1 million units.

HP Tablet PC $1,541

Lenovo ThinkPad X61 $1,021

Fujitsu LifeBook P1610 $1,612

Tablet PCs are basically notebook computers which also include a display screen that allows you to write on the screen with a stylus, effectively adding a yellow paper tablet to your computer system. These devices are touted as being well suited for hand-written notes and diagrams during meetings or presentations. Most tablet PCs offer the following features:

1. Extended battery life
2. Advanced wireless connectivity
3. Basic 16MB or 32MB graphics card
4. Microsoft Office OneNote 2003
5. Strong docking stations
6. Many base units require a docking station to use an optical drive like a CD or DVD burner

The Reviews Are In – Tablet PCs Not Widely Used

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Though some Tablet PC users have abandoned them, software updates like Microsoft XP Tablet PC Edition 2005 and the Tablet PC Experience Pack have added greater functionality and smoothed over some formerly rough edges. Now text input is easier than ever with choices between an on-screen keyboard, a graffiti style letter recognizer, or fully-funcitonal writing pad.

I have to admit that for some inexplicable reason I've wanted a Tablet PC since they were released, and I now use one regularly when lecturing. Some people complain that Tablet PCs are not durable; they break when you drop them, but so do eggs. I try hard not to drop those and they only cost a fraction of what my Tablet did. But seriously, right now the bottom line appears to be that Tablet PCs are expensive and only of substantial value to specialized industries or salespeople. It simply does not make sense to pay twice the price of a regular notebbok for less power. But deals can be obtained. In the value segment Averatec makes a fully functional convertible notebook (notebook with full keyboard but swiveling tablet screen), which I was then able to upgrade with 2 GBs of RAM and a fast 7200rpm notebook hard drive to come away with an very competent machine.

Initially, Steve Jobs at Apple reported that they were not going to get into the tablet PC market, but the rumormill is running at full tilt with a tablet offering from Apple. Even IBM has an entry in the Tablet market after the divison was sold to Asian manufacturer Lenovo.

Servers

While almost any desktop PC with network access can operate as a file server, true servers are constructed with more power, faster file serving, and better durability in mind. The network server holds the company's data files and applications so everyone in the office can share them. Not only does this facilitate file sharing, it also makes back ups and centralize printing easier. Presented below is a list of key differences between true servers and typical desktop computers:

Differences Between A Desktop PC and Trure File Server

1. While desktop PCs typically have 32-bit boards, most servers have 64-bit motherboards. This provides for greater performance and capacity.

2. Most desktop PCs have 1 to 2 GBs of RAM, while most servers have 8GBs of RAM or more. Once again, this provides for greater performance and capacity.

3. Servers have faster hard drive architecture such as fiber optic connects that enable data to flow faster to and from the hard drive.

4. Even LAN connections are faster in a typical server. Because a server provides multiple PCs and users with resources it must make that information freely available and fast. Most serves today are equipped with Gigabit Ethernet, giving approximately 10 times the throughput speed of an ordinary 10/100BaseT NIC. The CPUs for servers are also engineered differently. Server CPUs are typically 64-bit processors and thus have long

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required 64-bit operating systems and applications. However, newer server CPU's like AMD's Opteron offer the ability to slowly migrate to 64-bit computing as application development evolves. These new 64-bit processors and their desktop relatives can run 32-bit programs with increased efficiency while maintaining the raw 64-bit power of cutting edge computers.

Lastly, server hard drives can be of sturdier construction and are usually designed with more fail-safes than their desktop equivalents. Many servers are setup in a Redundant Array of Independent Disks or RAID configuration. There are countless configurations for a RAID array all specializing in different methods of data protection or performance enhancement. The simplest setup is a RAID 1, or mirroring array. RAID 1 duplicates the contents of your primary drive onto an auxiliary drive to guard against physical drive failure. If one or the other crashes, you have a perfect backup. However, don't be confused about the amount of storage available. If a server or desktop is configured in a RAID 1 array the storage capacity will only equal half of the combined drive size because one is an exact copy of the other.

The most current trend in servers today is blade servers. These nearly self-contained computers are constructed entirely on a thin chassis base which can then be slid into a rack-mounted interface along side countless other "blades" creating one giant uber-server as shown in the picture above. The rack-mounted servers do require a degree of space management and planning as well as some environmental control. Blades require adequate ducting and ventilation as the exhaust heat from one server blade can conceivably be transferred and increased all the way through the server rack to the last blade, dangerously reducing its life due to constant heat and pressure.

Printers

Printer Types

Ignoring cake frosting printers, today's printers utilize 4 different technologies; dot matrix, thermal, Inkjet and laser. Brief comments about each technology follow:

1. **Dot Matrix** - Today's fastest dot matrix printer (IBM 6400 Model i2S Printer) costs almost $10,000 and prints at 36 pages per minute. The advantage is that it is very cheap to operate (just 1/5th of a penny per page), but the resolution is poor. This technology is used to print receipts or long reports on fanfold paper. They're noisy too. Today's laser printers print much faster for far less cost.

2. **Thermal** – This technology requires special paper and is more expensive to use. Mostly you will find thermal printers in use printing bar code labels, but there are other uses such as color dye sublimation to produce color photographs. Thermal paper has a tendency to break down quickly and is not good for permanent storage.

3. **Inkjet** – Inkjet printers today are sold at a loss so that profits may be made from the sale of inkjet cartridges. Inkjet printers are slower than laser printers. The fastest Inkjet

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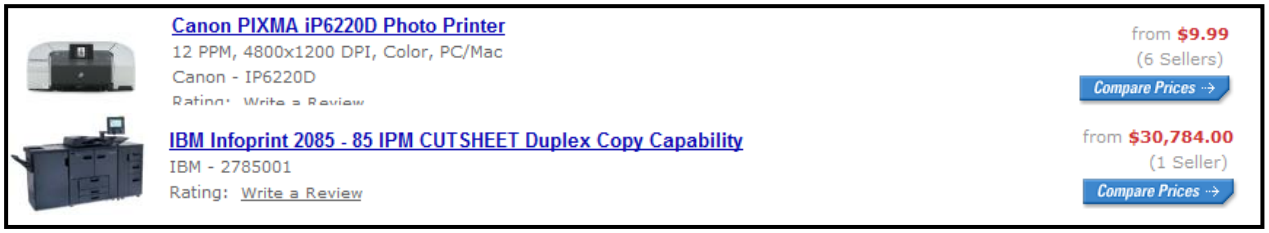
printer is the Hewlett-Packard HP Business Inkjet 2300dtn Printer – it sells for $900 and prints 26 black and white pages per minute and 22 color pages per minute. Compared to laser printers, inkjet printers are far more expensive to operate.

4. **Laser** – Laser printers are the most popular choice for business use, and you should be using laser printers everywhere. They offer the fastest and most affordable printing option. The fastest laser printer is the HP LaserJet 9000hns printer – it sells for $7,800 and prints 50 black and white pages per minute. However many printers can produce 45 pages per minute for far less cost. For example, the hp LaserJet 4300 prints 45 B&W pages per minute for just $1,400.

Printer Market

There are more than 3,300 different laser and inkjet printers available in the marketplace ranging in price from $9.99 to more than $30,784 (These options are shown below).



With so many options to choose from, choosing the right printer can be a daunting task. Here is a summary of our analysis:

Laser Printers	Quantity Available	Lowest Price	Highest Price
B+W Laser	399	$60	$11,000
Color Laser	168	$150	$9,332
Inkjet Printers			
Inkjet Printers	306	$14	$13,751
Photo Printers	125	$29	$751
Wide Format Printers	37	$300	$20,740
Total	1,035		

Industry analyst Gartner proclaimed that shipments of printers, copiers, fax machines and multifunction products in the United States increased 11.1 percent in 2004, but end-user spending declined 3.5 percent to $20.5 billion. Photo printers and color laser devices performed well. Color copier/printer multifunction products led the U.S. market in 2004, with unit shipments growing more than 62 percent compared with 2003. Color page printer shipments grew 50 percent year over year. Inkjet printer unit shipments in the United States grew 7.3 percent year over year in the third quarter of 2004. U.S. unit shipments of inkjet all-in-ones increased 16 percent year over year.

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Printer Brands

Worldwide printer sales amount to almost $8 billion annually based on the sale of approximately 24 million printers – therefore we can estimate that the average selling price for a printer is about $333. While there are dozens of companies world wide that manufacture printers, in 2003 HP was the dominant company with 52.6% of the worldwide printer market. Lexmark International Group was second with 21.8 percent, followed by Epson, which had 13.9 percent, and Canon, with 7.7 percent. These four companies control 95% of the world wide printer market. Surprisingly powerhouse companies such as Xerox, Samsung, Tektronix, and IBM are virtually non players in this market. Recently Dell Computers entered the printer market as well by rebadging proven Lexmark models. Dell's laser printer line is shown below:

Printer Features

As you evaluate printers, the key features you should be aware of are as follows:

1. **Page Per Minute (PPM)** – The number of pages printed per minute range from 1 to 50 for business grade printers. The faster the better. Many people tell me that "*speed does not matter*", which is a ridiculous statement. Given the same price, wouldn't you always choose the faster printer? Of course you would. Take our word for it and purchase a 45 ppm printer, you simply will not regret it.

2. **Cost Per Page (CPP)** – The cost per page is really the more important factor to evaluate. Older printers such as the HP LaserJet 5 printed documents at a cost of approximately 2.5 cents per page before paper cost, while the HP LaserJet 4300 costs just .8 cents per page before paper costs. Based on these numbers, each printed page from the HP LaserJet 4300 saves 1.7 cents, or $85 per box of paper (5,000 sheets). At this rate of savings, a new HP 4300 which costs about $1,400 today, will pay for itself in just 16 boxes of paper. In the meantime, you will enjoy faster printing and higher resolution as well.

3. **Resolution (DPI)** – Today's resolution standard for laser printers is basically 1200 by 1200 dots per inch. However inkjet printers are capable of achieving much higher resolutions up to 5760 x 1440 DPI. The trade off is speed.

4. **Color** – Color printing is the fastest trend in printers, and the cost of color printing continues to fall. For example, Xerox claims that its color printers cost about 10 cents a page before paper costs for its Phaser 6200, 7300, 7700, and 8200 printers. Other color printers report that their cost per printed page ranges from 2.5 cents before paper for the Canon printer, to as high as 50 cents per page for other color printers.

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5. **Oversized Printing** – Some printers can handle oversized paper, 11 inch by 17 inch for example. These printers will cost much more.

6. **Duplex Printing** – Some printers can turn a paper over and print on the reverse side automatically. Usually duplex devices are add-on attachments to laser printers and they typically cost from $200 to $1,000.

7. **Collating & Stapling** – Some printers can collate reports and even staple them. Depending upon the type of output you produce and the quantities you print, this can be a great savings or a complete waste.

8. **Printer Memory** – All laser printers have memory, and as you might expect, adding more memory to your printer yields benefits. However you will typically only see those benefits when printing large documents or when several heavy users share a printer. For the casual user, the base installed memory is usually sufficient to meet your needs.

Printer Advice & Tips

It is impossible to make a specific printer recommendation because there are so many printers and so many different types of printer needs in the marketplace. However here are our best pieces of advice regarding printers.

1. **Network Connection** – Never connect a printer through the parallel port on the back of your computer. Instead, always hook your printer up as a node on your network. It will perform much faster, sometimes 50 times faster when printing large documents with heavy graphics.

2. **Separate Laser & Color** – It is better to purchase one laser printer to meet your black and white printing needs, and a separate inkjet printer for your color needs. You will save money up front and over the long haul with this approach.

3. **HP Brand** – We like to recommend HP printers because they are very compatible, and the drivers are probably already preinstalled on your computers.

4. **Top Business Printer** – For high end laser printing, we recommend the HP 4300 dtn.

	HP LaserJet P4014n Printer $699.99 • Print speed, black (pages per minute) - Up to 45 ppm • Recommended monthly volume, maximum 250,000 pages • Toner cost $154 but lasts 10,000 pages

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 HP 4350dtnsl	**HP 4350dtnsl** • Print speed, black (pages per minute) - Up to 55 ppm • 2 trays, 600pg input, 800pg output 750 down/50 face up • First page out, black - Less than 8 secs • Processor speed - 460 MHz • Recommended monthly volume, maximum 250,000 pages • Duplex printing - Automatic (standard) • 96 MB RAM std. upgradeable to 512MB, HP Jet direct 10/100Base-TX print server card, additional 500-sheet tray, and duplex printing accessory. • Optional 20GB HD • Dimensions (w x d x h) - 16.4 x 20.9 x 19.2 in • Weight - 74 lb • Toner cost $129 but lasts 10,000 pages • 2009 Street Price - $279

(I actually purchased the earlier model of this same printer for my own use at the office in early 2004 for $2,200, so you can see that I put my money where my mouth is. This printer still sold for the same price as of 2008, but now in 2009 is amazingly affordable at just $279. In 2010, the prices have jumped higher to the $450 to $600 range due to the devaluing of the US Dollar.

5. **Top Color Printer** – For color printing we recommend the Epson Stylus CX6400.

	Epson Stylus Photo RX680 All-In-One Printer 40 PPM 5760x1440 DPI Color, PC/Mac MPN: C11C686201 $120

6. **Top Power Printing** – For high performance printing, we recommend the HP LaserJet 9000hns.

 HP LaserJet 9000 MFp	**HP LaserJet 9000 MFp** • 50 ppm, 1200 x 1200 DPI • Network ready • Hard disk, 128MB of RAM • Automatic duplex • 3100 sheet input capacity, • HP 2000-Sheet Input Tray • HP 3000 Sheet Stapler/Stacker LJ9000 • Dimensions: 49.75 Inch (W) x 27.5 Inches (D) x 40 Inches H

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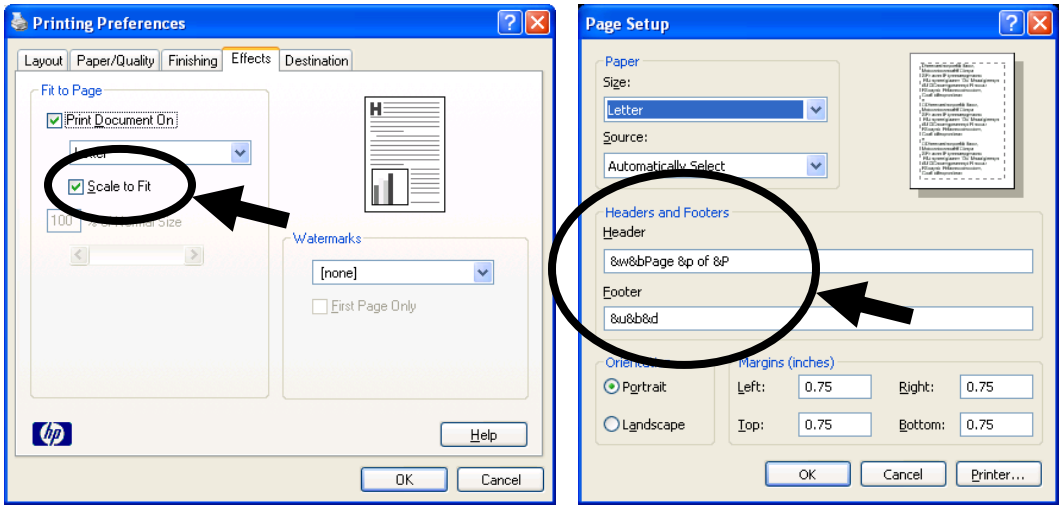
	• Weight : 317 lbs. • 2009 Street Price - $1,199

5. **Ink Refills** – We generally recommend against refills. The ink nozzle built into most printer cartridges is not meant to be run for refill after refill. When you replace your ink cartridge, you also replace your old nozzle with a brand new one. Each time you refill a cartridge, you keep using the same old nozzle. This can be especially important if you're trying to print out photographs.

6. **Printer Set Up** – You can set up the same printer multiple times in your printer dialog box, each time with different settings. One option may produce landscape results while another produces draft quality results. Just a thought.

7. **Shop The Web** – When searching for the lowest prince for a printer, use the shopping procedures outlined in our Desktop Computer section in Chapter 2. You will typically save 20% to 25%.

8. **Printing Web Pages** – When printing a web page, here are two tips. First with some printers, you should check the "scale to fit" box under printing preferences so that your printer will not cut off the edge of the document when printing. Also, under page set up, remove any header or footer controls if you don't want that information to print on the page.



9. **Print from Folder** – You can actually print multiple files without opening them by selecting them in a folder using the CTRL key, and right mouse clicking. This will automatically print to the default printer, so make sure that you set the correct default printer prior to using this action. This dialog box is shown below.

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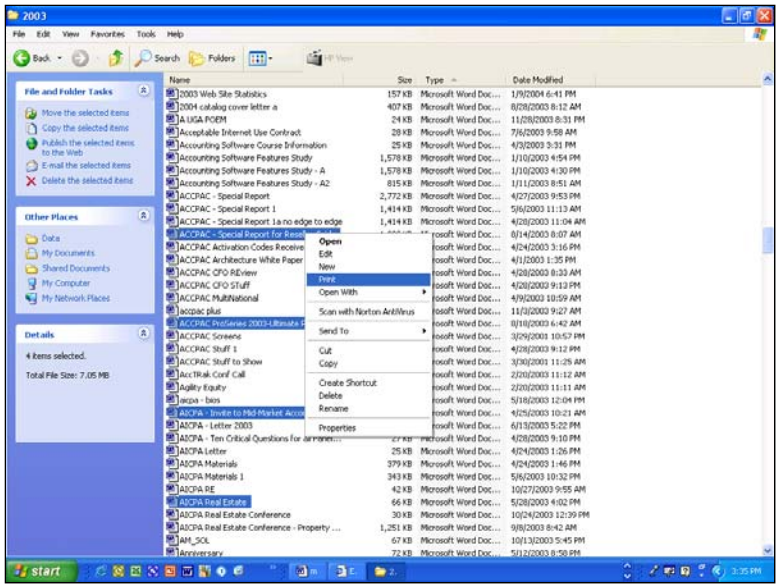
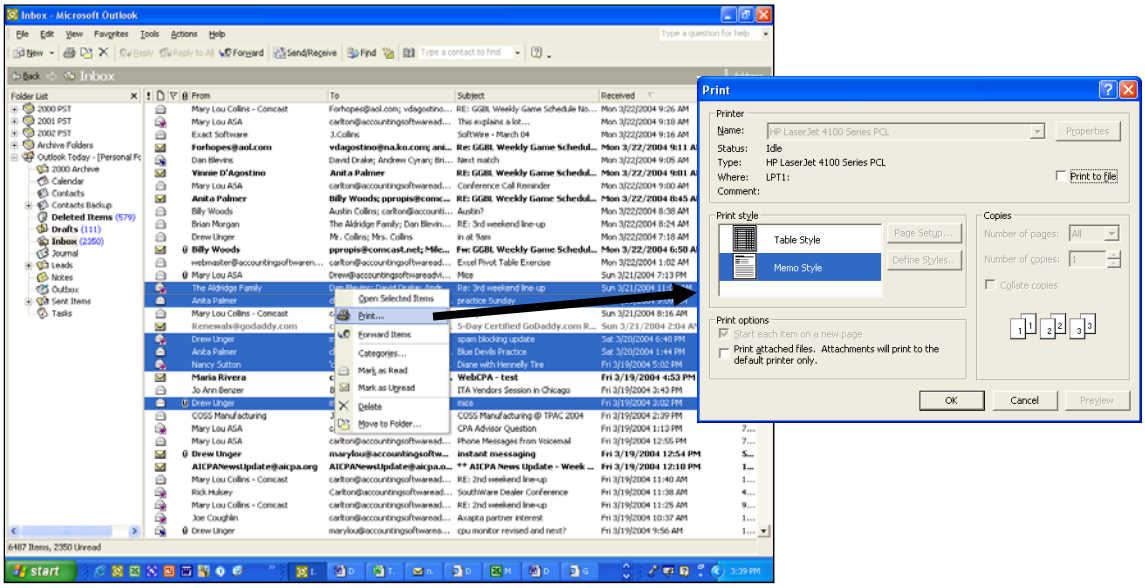


10. **Print E-Mail** – Multiple e-mails can also be printed using the technique described above.



Conclusion

Printer technology has always been very good, but today's printers make yesterday's printers obsolete. Throw your HP 3s, 4s, 5s, and 6s in the trash can and step up to the newer technology. It's time.

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Scanners

Canon CanoScan Flatbed Scanner $44

With the rapidly evolving state of technology and continually falling prices, today there really is no excuse not to have a flatbed scanner in your home or small business. Techbargains' index site lists 274 consumer grade scanners. At one time flatbed scanners were too expensive to warrant purchase outside the graphic design and publishing industries. However, fully capable scanners can now be purchased new at any consumer electronics or computer store for $50 while top of the line models reaching about $200 with transparency or film scanning adapters. Of course these prices can be easily beaten with a little online research. The most popular connection interface for current scanner models is USB 2.0 mainly because of its ability to quickly transfer large files such as scanned images to your PC. High-end scanners may include options such as film and transparency adapters which allow you to scan anything from slides to PowerPoint created overheads. Basically though, there are two major factors to consider when buying a scanner.

Resolution- 1) "optical" or hardware resolution and 2) "interpolated"-usually specified as the maximum resolution, this option uses software to interpolate increased resolution into the existing image. Interpolation basically surveys the pixels your hardware was able to scan and adds pixels in between based on averaging algorithms.

Size- Most flatbed scanners support scanning standard 8.5 x 11 sheets as well as legal size documents. Larger 11 x 17 solutions are more expensive and may require an enterprise grade scanner to achieve sufficient results.

For big jobs, select a scanner with a built in sheet feeder, and automatic document naming and saving features.

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Document Imaging Management

The trend in very bold businesses is to banish multiple copiers and printers instead opting for a Document Imaging Management solution. The basic technology behind Document Imaging Management relies on enterprise grade scanning of all company documents, internally and externally in an effort to physically remove paper from the company's operations by converting all written/printed communication into digital image information. While this drastic plan may involve some initial chaos, many solutions and product vendors offer a full complement of support where a representative actually arrives on-site to manually process all existing paper documents to begin integration into the management system. The inherent accessibility of digital media eliminates countless problems associated with maintaining paper files and storage while offering restricted access and document security and privileges in a way never possible with printed material. One type of business that has reported relative success among numerous implementations of the paperless office is law firms. Lawyers essentially deal in an information exchange. From data from clients and other sources, to information gained from research and experience, to pleadings, oral presentations, opinion letters etc. law firms must effectively manage information. Using document management programs such as TimeMatters or GroupWise many firms have been able to cut costs and increase productivity through successful implementation and usage of an 1) enterprise imaging system with auto document feeder such as the one shown here, 2) an imaging program like Adobe Acrobat, and 3) an imaging manager, file server, or network. While carefully organized folders and hard drives can render thousands of pages of material indexed and searchable, some solutions require a hardware investment of $15,000 and possibly more to effectively create a paperless office.

The Fujitsu fi-5900C scanner is tailored for high volume applications – 2007 street price$13,449. Details:

1. Processing 120 pages per minute
2. Supports the scanning of two-sided pages
3. Connects via high-speed USB 2.0 and Ultra Wide SCSI
4. True 600-dpi optical resolution, dual-CCD scanning arrays and a black/white switchable background
5. Daily duty cycle is rated up to 100,000 sheets
6. 500 page automatic document feeder (ADF)
7. Accommodates documents sizes from 2.07" x 2.91" to 12" x 17"
8. Long document scanning capability of up to 34"
9. File formats include Adobe Acrobat Standard, ScandAll 21, QuickScan Pro (Demo), and Kofax VRS 4.0

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Ergonomics

Ergonomics is a discipline dedicated to creating the best working environment possible, and this discipline applies to many areas beyond the use of computers. However for our purposes, this section focuses on ergonomics at the computer workstation. Have you ever seen a person working with a tiny monitor using a keyboard sitting atop a tall desk? Their arms look like bird wings flayed out to the sides and their eyes have crow's feet from perpetual squinting. A quick inspection of most computer workstations usually reveals simple measures that can be taken to correct obvious ergonomic problems. These remedies not only can help people work longer and more efficiently, but can lead to fewer mistakes, decreased lost work days, decreased employee turnover, and increased morale. Presented below is a simple checklist you can use to check out the work stations in your office – give it a try.

Computer Workstation Ergonomic Checklist

1. Chair must be comfortable and adjustable
2. Chair should be on rollers to allow for proper positioning, and re-positioning
3. Chair should not have arms, or should have arms that fold down
4. Computer monitor should be right in front of chair, not to the side
5. Keyboard should be in keyboard tray so that arms are level when typing
6. Monitor should be large, a flat screen monitor is preferred over a CRT
7. Monitor should not have glare, install curtains or a glare screen if necessary
8. Arm should not rest on a sharp corner or edge of desk
9. Lighting should be plentiful, sunlight and florescent light is preferred over incandescent
10. Work area should not be cluttered
11. A foot rest should be used by persons whose legs do not adequately reach the ground
12. Noise should be kept to a minimum
13. An ergonomically designed keyboard and mouse should be considered
14. Use a phone headset to free up hands and prevent cradling the phone with the neck

The following diagram is typical of ergonomic configurations. For the person who sits at a computer workstation 8 hours a day, a few simple adjustments can make a significant difference over the course of a year, or many years.

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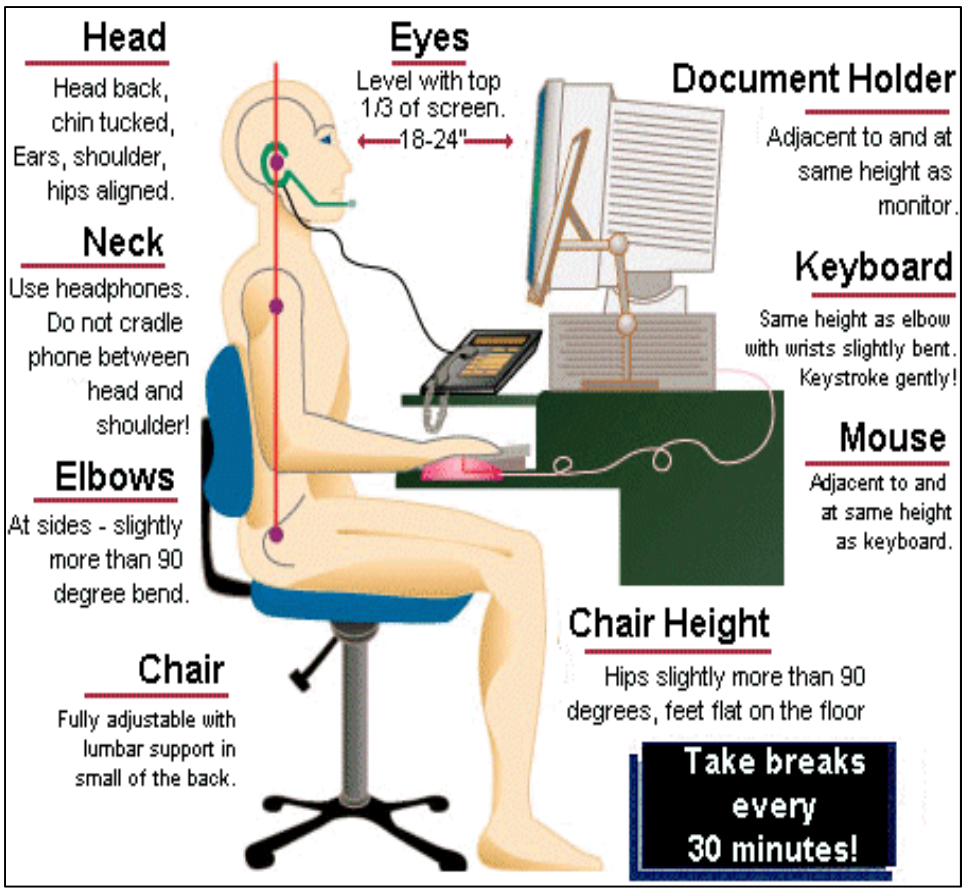
Head
Head back, chin tucked, Ears, shoulder, hips aligned.
Eyes
Level with top 1/3 of screen.
18-24"
Document Holder
Adjacent to and at same height as monitor.
Neck
Use headphones. Do not cradle phone between head and shoulder!
Keyboard
Same height as elbow with wrists slightly bent. Keystroke gently!
Mouse
Adjacent to and at same height as keyboard.
Elbows
At sides - slightly more than 90 degree bend.
Chair Height
Hips slightly more than 90 degrees, feet flat on the floor
Chair
Fully adjustable with lumbar support in small of the back.
Take breaks every 30 minutes!

Ergonomic Products

Presented below are a few examples of products that can help you create a more ergonomically correct working environment:

Ergonomically Correct Keyboard

Keyboard Wrist Pad

Mouse Pad

Monitor Riser

Keyboard Tray

Wrist Support

Adjustable Chair with Folding Arms

Monrency Arm Rest

Grip Squeeze Balls

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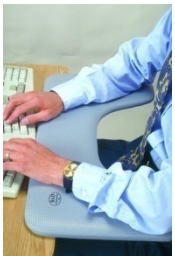


Glare Screen

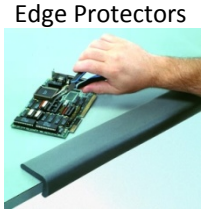
Ergonomic Mouse

Padded Floor Mat

Back Support

Edge Protectors

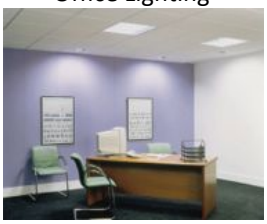
Head Phones



Desk Lamp

Office Lighting

Workstation



Ladder Back Chair

Flat Panel Montitor

No Grip Pen

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Adjustable Table

Ball Chair

Knee Chair

Keyboard Lift

Health at the Workplace

Carpal tunnel syndrome occurs when the median nerve, which runs from the forearm into the hand, becomes pressed or squeezed at the wrist. The median nerve controls sensations to the palm side of the thumb and fingers (although not the little finger), as well as impulses to some small muscles in the hand that allow the fingers and thumb to move. The carpal tunnel - a narrow, rigid passageway of ligament and bones at the base of the hand houses the median nerve and tendons. Sometimes, thickening from irritated tendons or other swelling narrows the tunnel and causes the median nerve to be compressed. The result may be pain, weakness, or numbness in the hand and wrist, radiating up the arm. Although painful sensations may indicate other conditions, carpal tunnel syndrome is the most common and widely known of the entrapment neuropathies in which the body's peripheral nerves are compressed or traumatized.

The risk of developing carpal tunnel syndrome is not confined to people in a single industry or job, but is especially common in those performing assembly line work - manufacturing, sewing, finishing, cleaning, and meat, poultry, or fish packing. In fact, carpal tunnel syndrome is three times more common among assemblers than among data-entry personnel. A 2001 study by the Mayo Clinic found heavy computer use (up to 7 hours a day) did not increase a person's risk of developing carpal tunnel syndrome. During 1998, an estimated three of every 10,000 workers lost time from work because of carpal tunnel syndrome. Half of these workers missed more than 10 days of work. The average lifetime cost of carpal tunnel syndrome, including medical bills and lost time from work, is estimated to be about $30,000 for each injured worker.

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Gadgets

CHAPTER 6

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Projection Systems

A Pricegrabber search for video projectors with a contrast ratio of 1,000:1 or better yields over 30 results from several well known manufacturers of computers and consumer electronics:

BenQ	**HP**	**PLUS**	**Sharp**	**Philips**
Sony	**Viewsonic**	**NEC**	**InFocus**	**Toshiba**

Mitshibishi Pocket Projector - $699

Prices range from just under $500 to well over $6,000, a stark contrast for two devices that simply take a video signal and use light to shine it on a wall right? Well, yes and no. There can be a tremendous difference in price from unit to unit; however, no current model operates so simply as to just shine light on a wall, and you pay for every extra built-in feature and convenience.

Video Projection Vs Film Projection

The video projector is similar to a film or slide projector in that they both accept a source, and project the image from that source onto a screen. After that the two become vastly different. Inside a video projector is a processor that converts an analog or digital video input signal into something that can be projected onto a screen and viewed not just by the family gathering to see home movies or pictures, but typically by large groups in meeting rooms and auditoriums.

LCD vs. DLP Digital Light Processing

There are currently two competing technologies used in video projectors today; LCD or Liquid Crystal Display common to many computer monitors and televisions, and DLP which stands for Digital Light Processing. An LCD projector basically works by passing a powerful light source through a transparent LCD chip made up of single pixels to project an image through a lens to a large screen. These types of projectors are highly portable, well-suited for multimedia use, and feature high contrast and brightness capability, as well as low power consumption.

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LCD Projector Limitations

1) An LCD projector can often times exhibit what is called "the screen door" or "window" effect. Since the screen is made up of individual pixels, the pixels project in a pronounced manner when viewed on a very large screen, thus giving the appearance of looking through a "screen door".

2) Just like their LCD monitor counterparts, LCD projectors can contain dead pixels due to manufacturing defects. Coupled with an enlarged view of this black or discolored pixel, an LCD projector can become frustrating to watch.

3) Also like similar monitors, LCD projectors typically have a native resolution which enables their best viewing characteristics. Using a higher or lower resolution source than the projector's native resolution can lead to distortion, illegible fonts, and eye strain.

NEC MT1075
4200 Lumens
$6,995 New
$4,995 in 2006
$2,995 in 2007
$3,890 in 2008
$3,298 in 2009
$2,328 in 2010

In terms of sales, the fastest growing type of video projector used today is the DLP projector. As with LCDs, the actual image is displayed on a chip, however, the chip used in a DLP projector is different. The chip in a DLP projector is referred to as a DMD (Digital Micromirror Device). In essence, every pixel on a DMD chip is a reflective mirror. The advantages of this system make the DLP projector suitable not only for business and home theater application, but DLP technology is also in use in some movie theaters for feature film projection.

The micromirrors on a DLP projector's chip tilt very rapidly as the image changes. This process produces the grayscale base for the image. Then, color is added as light passes through a high-speed color wheel and is reflected off of the micromirrors on the DLP chip as they rapidly tilt towards or away from the light source. Advantages of the DLP projector include excellent color accuracy, no "screen door" effect (as with an LCD), due to its micro-mirror construction, compactness, and higher contrast (they are sometimes not as bright as LCDs but images often look smoother).

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Specifications

Whether you intend to use a projector for small business meetings, large auditorium presentations, or even as a high end display for your home theater system several factors are universally important.

1. **Resolution –** Like LCD monitors, projectors have a native resolution, outside of which their projected image becomes blurry and fuzzy. The standard resolution is also 1024 x 768 with higher resolution models bringing a premium price, though some lower resolution models which can project an 800 x 600 image are coming down in price and would serve as an adequate backup projector.

2. **Brightness –** Measured in Lumens, 1500 is a fine specification for small groups or moderate home theaters, 3000+ works for large meeting halls and home theater enthusiasts. I generally look for at least 2500 lumens in a fairly portable presentation unit.

3. **Contrast Ratio –** This value has a substantial impact on image definition. The greater the ratio, the greater the disparity between light and dark areas-higher numbers allow for virtually true blacks and whites. 1000:1 = good 2000:1 or higher = excellent.

4. **Bulb life –** Because the actual light source comes from a physical bulb-projectors have a limited life span before the bulb must be changed. Never let the bulb come into contact with skin or the oil residue will contaminate the bulb creating display artifacts, hotspots, or worse.

5. **Bulb cost –** The benefit of changing the bulb lies in the fact that brightness and contrast levels are returned to a vibrant "like new" state. However an expense of $350 for one bulb every 1,000 to 3,000 hours is a bargain and high-end units will cost far more to renew.

6. **Weight –** While this may seem like a feature of interest only to the road warrior, lighter projectors make for easier home and office installations. Some units weigh as little lbs. though brightness is generally sacrificed to reach this compact size.

7. **Noise –** Not necessarily a specification listed on the box, but this is the first thing you notice when you turn the unit on, and loud whirring in the background can distract from any presentation. While breaking out the decibel meter for every model on display may be problematic, you can always check reviews at PC Magazine (pcmag.com) or Laptop Magazine (techworthy.com) to find out if your prospective projector wails or whispers.

8. **Connectivity/Input –** Some projectors feature digital media slots or an attachment module which allows you to run a presentation from a Compact Flash, Secure Digital card or a Pocket PC. This added functionality is a bonus and can save weight and time if you eliminate the need to carry a laptop.

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9. **Cable/Source Input –** Not all sources are created equal. Almost every projector will feature a standard D-sub 15-pin input. Many will also have an S-video connector or legacy RCA inputs. The higher end projectors will also have a DVI connection for use with outputting HDTV signals in their appropriate expanded resolution.

Web Cameras

In my years of exploring the Web I have run across hundreds of webcams of various configurations and locales. Webcams range from the silly to the serious. From videoconferencing with a client to following the movements of animals at your favorite zoo, webcams have great communicative potential. Until a few years ago I often demonstrated one webcam conferencing product that was particularly user friendly. With Microsoft's NetMeeting users could converse and send video feeds in real time. You could even join a random video conference and meet someone from across the globe. Unfortunately that program became overrun with users' "inappropriate" personal webcams. However there are still lots of productive uses for webcams. For example:

Linksys Wireless-G Internet Video Camera

- You will be out of town for a week and you want to keep an eye on your home/office
- You'd like to be able to check on the babysitter and make sure everything is okay while you're out
- You'd like to know what your dog does in the backyard all day long
- You want to monitor activity in your warehouse/loading dock/showroom

Some webcams can even operate wirelessly, like the Linksys Wireless-G Internet Video Camera (shown right), allowing wireless video transmission and monitoring. An initial wired connection may be required for setup. Once in place, the camera does not need to be tethered to a PC for wireless audio and video broadcast via the Internet.

Logitec

If there is something that you would like to monitor or display remotely, a webcam makes it easy. All a webcam really consists of is a lower resolution digital camera directly linked to your computer. Webcams were never terribly expensive but some devices have dropped well below $100 and they are easy to connect through a USB port. A piece of software initializes the camera and grabs a frame from it periodically. For example, the software might grab a still image from the camera once every 30 seconds. The program then turns that image into a normal JPG file and uploads it to your Web server. The JPG image can be placed on any Web page.If you don't have a Web server, several companies such as now offer you a free place to upload your images, or host video conferences saving you the trouble of having to set up and maintain a Web server or a hosted Web site. Many companies like CUWorld actually allow you to use their service for free video conferencing. In order to send and receive audio you will also

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need a microphone and speakers. We recommend a headset with a boom mic for clarity and convenience. While webcams may seem like novelties they can serve valuable uses as teaching/consulting tools or simply by allowing you to stay in close contact with distant friends or relatives.

Digital Cameras & Imaging

Are You Still Using A Film Camera & Paper Prints?

Are you still using a film camera? If so, why? Perhaps you just like to throw money away. Today a digital camera can hold 5,000 images and there is no cost to purchase film and no cost to show pictures to friends and relatives. You can purchase a decent digital camera for about the same cost as developing 5 to 10 rolls of film. Here are some of the benefits and business uses of digital images over paper images:

1. No cost for film, no cost for processing negatives.
2. Ability to hold 5000 pictures on your camera (assuming 512MB card and 100k images).
3. Share with anyone, anywhere.
4. Make backups on CDs, store them in a family member's closet.
5. Print any picture you want, in any size you want.
6. Print on regular paper with black and white printer, or on high quality paper with a color printer.
7. Upload images online and your pictures are mailed to you for about 20 cents each.
    a. (Ophoto.com, Fotki.com, etc.)

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8. Edit the picture (adjust brightness, add hair, make yourself look skinnier, wipe away wrinkles).
9. See pictures immediately and retake poor images immediately.
10. Post your pictures to websites or as wallpaper on your computer.
11. Create product photo databases for easy integration to catalogs and websites.
12. Take personnel photos for security badges/ID tags.
13. Record crash/accident site characteristics for insurance and loss prevention purposes, particularly useful for field agents/mobile sales force.
14. Relate physical production obstacles or workplace problems to maintenance/administration, any relevant department with email.
15. Eliminate the nuisance of photo-lab business accounts and time consuming travel and other tasks when photos can be printed from the office printer then saved to a hard drive, CD, or other media without the need for scanning.
16. Produce presentation slide shows of properties, inventory items, personnel, etc.
17. Pictures of your employees can be published to the Internet, organization charts, new employee hires, security identification.
18. E-mail attachments.
19. Pictures of items in Word, Excel, PowerPoint or databases to share with sales reps, customers, web site.
20. Document assets for insurance purposes.
21. Pictures of business events such as parties, conferences.
22. I use them to take pictures of every PowerPoint slide at a conference, great way to capture information.
23. Take pictures of letters instead of scanning them in if you don't have a scanner, though document and general purpose flatbed scanners can be found for $30-40.
24. Miscellaneous use - Travel with a camera in case you need to take pictures of a wreck, or other event.

If you are using a film camera, perhaps it's time to change. Consider that 50 million digital cameras were sold worldwide in 2003. There are nearly 200 image editing and archiving software packages for the Microsoft Windows family of operating systems alone. A Google search for "jpg" and "gif" shows that there are more than 143 million gif and jpg pictures indexed on the Internet.

In 2003, digital camera sales in the United States surpassed sales of traditional film cameras for the first time ever. Research studies estimate that roughly 30% percent of American homes now own a digital camera. This increase from 20% the year before indicates a growing trend in consumer preference for digital photography. Demand for digital photography grows so steadily that other consumer devices like cell phones and PDA's now integrate the technology on a regular basis. Current printing quality standards allow the majority of users to make

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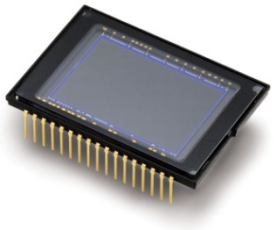
satisfactory prints conveniently in their own home. However, digital mini-labs and in-store digital printing kiosks are quickly gaining popularity. Here are two examples – a small digital camera as well as a killer digital camera.

Canon PowerShot SD900
(10.4MP, 3548x2736, 3x Opt
$356

Nikon D60 SLR Digital Camera Kit
(10.2MP, 3872x2592, SD/SDHC Card Slot
$629.99

CCD Technology



Most digital cameras utilize a sensor called a Charged Coupled Device or CCD to capture light transmitted through the camera lens to form an image. The sensor consists of millions of dots, or pixels, which when taken together make up an image. Therefore, the more pixels your camera uses the more detailed the picture it produces. For the first few years after digital cameras entered the market, resolution formed the basic standard of measurement for all camera models. Only the megapixel (million pixels) value mattered. Some cameras came with high quality glass lenses rather than plastic. Others claimed to achieve the most accurate color reproduction. However, none of these features meant as much as the image resolution. In order to create a particular size photographic quality print from a digital camera the resolution of the camera itself must meet a certain standard:

2 megapixels = 5" x 7"
3 megapixels = 8" x 10"
4 megapixels = 11" x 14"
5 megapixels = 12" x 16"
6 megapixels = 16" x 20"

Now some consumer grade cameras are capable of 7 or more megapixels. However, due to advances in technology, resolution no longer serves as the single deciding feature in a digital camera purchase. Now consumers can compare color reproduction, image enhancement abilities, and most importantly, the optical quality of digital cameras. Now that CCD technology is relatively uniform across many consumer oriented camera brands, the lens like in traditional 35mm photography remains a critical component in digital photography. Now purchase decisions must consider factors like the manufacturer of a given lens or the focal length of the camera's zoom lens. Companies like Nikon, Canon, and Minolta who crafted lenses for years before the digital era rightfully implement high quality glass in their digital camera offerings

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from professional models to the simplest point and shoot. Other camera manufacturers also choose to employ high quality glass elements in their cameras to stay competitive in the market as optical quality increasingly becomes a figure for distinguishing camera quality.

For instance, Kodak incorporates Schneider Variogon lenses into its top tier models while Sony integrates Carl Zeiss expert craftsmanship with their own advanced features and digital technology to produce many high quality cameras. Following are two examples of digital cameras from Kodak and Sony that incorporate superior lens technology. If you are shopping in the $150 to $900 price range, these two models are among our top recommendations:

Kodak EasyShare DXZ710 Digital Camera Schneider Vario Sonnar 10x Optical zoom 7.1 megapixel $183.00

Cyber-shot DSC-N2 SLR Digital Camera 3x Optical zoom 10.1 megapixel $275.99 10.2

Additionally, a camera's zoom lens makes a big difference in terms of practicality, ease of use, and photographic quality. Many digital cameras today come with two zoom options: digital and optical. Seeing as how a digital zoom merely crops and enlarges an existing image roughly the same way any image editing program would, the quality and range of the optical zoom is the more relevant feature. While a seemingly infinite number of 2.0 and 3.0 megapixel cameras with 3x optical zooms are available on the market, a zoom of greater length may prove far more useful. The multiplication factor of optical zooms relies on the standard set by 35mm film photography. A 3x optical zoom therefore produces photos equivalent to a 105mm lens when zoomed all the way out. Such zooms provide more than adequate range for casual picture taking and even general business and workplace applications. However, a larger zoom allows for closer, frame-filling photos from a greater distance like in sports or wildlife photography.

Furthermore, several cameras offer advanced features such as exposure compensation and varying degrees of manual control similar to professional 35mm cameras without a drastic increase in price. As with any purchase the optimum feature set of a digital camera depends predominantly on its intended use.

Problems with digital cameras

Digital cameras aren't without problems. Presented below are some negative aspects of digital cameras that you should consider:

1. **Lens Quality** - Lens quality is generally not as good as lenses found in comparably priced film cameras. However, many manufacturers now incorporate high-quality lenses into their offerings. Sony cameras use Carl Zeiss optics, Kodak uses Schneider lenses, even HP cameras contain lenses supplied by experienced camera maker Pentax.

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2. **Picture Speed** – Digital cameras generally don't take pictures as quickly as film based cameras. This is usually because these cameras auto focus before snapping the shot. For this reason it is more difficult to capture fast action shots with a digital camera. For example, taking a picture of your child's tennis serve or swing of the baseball bat may miss the shot. To compensate for this problem, you can press the button halfway down to auto focus, and then your camera will respond much faster when you press the button.

3. **Grainy Pictures** – While all digital cameras take outstanding pictures in bright daylight, less expensive digital cameras often produce grainy results in dark situations.

4. **Flash Timing** – I have found that digital cameras and the corresponding flash are not always in sync, and pictures turn out dark or black even when using a flash. Watch out.

5. **Transferring Images** - Older digital cameras typically used 12Mbps USB 1.1 cables to transfer pictures from the camera to the computer. Now the USB 2.0 standard offers 480 Mbps transfer speed. Now consumers can even purchase an 8-in-1 card reader for about $10 that connects to their computers and accepts several digital camera cards, many PCs now have these built-in.

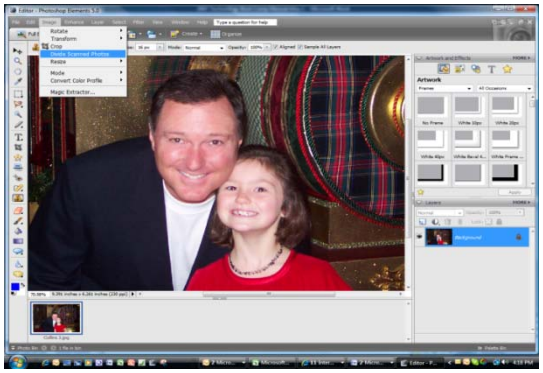
6. **Professional Prints** – Professional processing/printing facilities are not as abundant as traditional photo-labs. Film shops are on every corner whereas digital image shops are not.

7. **Home Prints** - Print quality with average home printer is "average".

8. **Advanced photographers** should consider that wide angle and fast action shots are more difficult to produce due to the narrower angle of view and slower response time found in digital cameras.

Digital Camera Software – Photo Editing Software

There are nearly 200 different photo editing tools on the market today. There are photo album products, editing products, and design products. Of all of them, PhotoShop is widely believed to be the most powerful of these tools, but at $649 this product may be priced out of range for the average user. A sample screen shot from Photoshop is shown below:



For less money, one good photo editing package is Microsoft Picture It! (Digital Image Suite) for $120.

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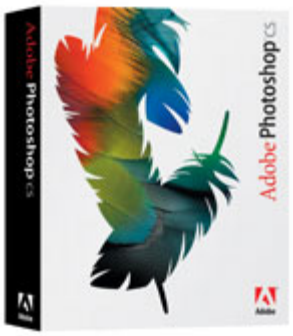

With these tools, users can now adjust, alter, and improve their digital images to a greater extent than possible with traditional 35mm film processing.

- Remove/reduce red-eye, glare, or other abnormalities
- Repair tears, heat, and water damage to photos
- Adjust brightness, color, and contrast for vibrancy and accuracy
- Eliminate eye sores, distracting picture elements, and even people
- Insert captions and file descriptions

Below we see an old torn picture of my father, grandmother and aunt before and after I restored it using simple clone commands in a basic product such as Picture it, PhotoDeluxe, or Photoshop.

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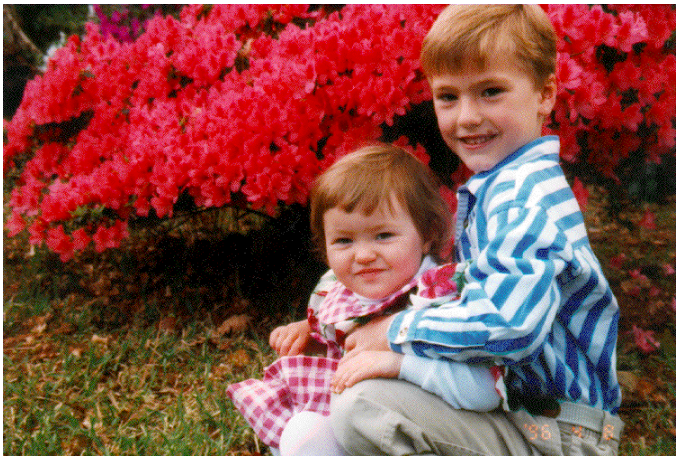
Additionally, the resolution and image quality possible with a digital camera has steadily increased each year. No longer relegated to simple recording duties, current consumer grade digital cameras support resolution high enough to rival and replace 35mm offerings for both casual and business photography. The following two pictures were taken approximately four years apart using current digital cameras each time. The first was taken with a Minolta Dimage (resolution of 640 x 480 - translates to .3 megapixels).



This second shot was taken with a Kodak DC4800 which produced a four megapixel image. Of course every year digital camera quality improves and the attainable image resolution increases exponentially.

The following picture was taken with my 7.2 megapixel Casio Exilim which I have owned for 2 years. I can say that this is my favorite piece of technology I have ever purchased – I love it! I originally paid $400, but now you can find them for $185.

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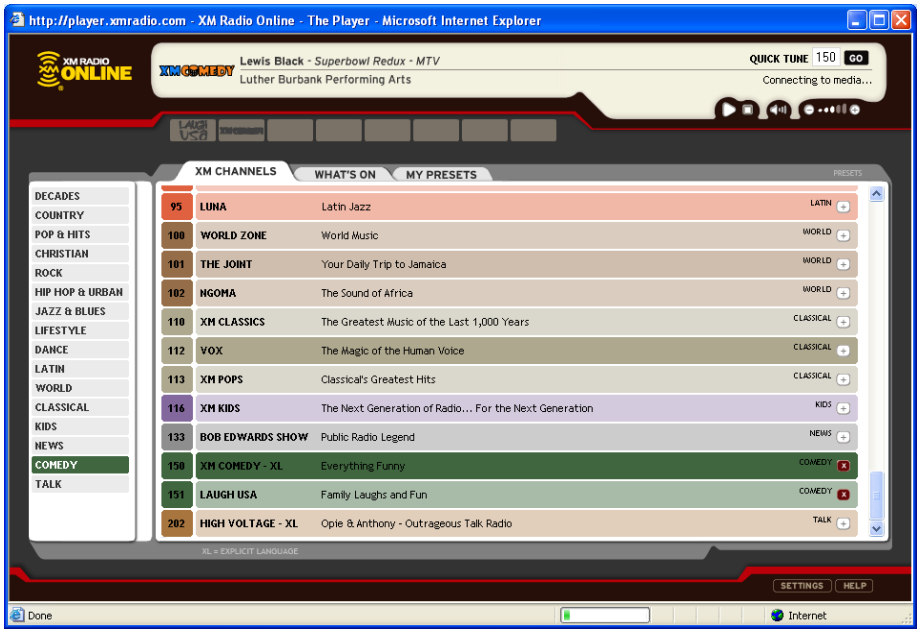
Satellite Radio

One of the hottest new technologies has been XM Radio and Sirius Radio – two satellite based radio services that costs between $100 to $200 per year, depending on the premium channels and services you subscribe to. I tried XM Radio in my Chevy Avalanche for about four months and presented below is my review of this service.

I initially got hooked on satellite radio services while renting AVIS cars while traveling on business; this enabled me to listen with great clarity when traveling without having to change stations. However, I found that XM Radio fell well short when I purchased it for my own personal use for the following reasons:

1. **Filthy and Vulgar Comedy** - I like to listen to comedy. Unfortunately, both of the comedy channels provided by XM Radio contain extremely vulgar language and extremely mature topics mixed all day long with the funny stuff. As a result, I am unable to listen to the XM Radio comedy channels while my family was in ear shout, because these vulgar words and topics pop up frequently without warning. My kids are young and it would be wrong to expose them to this type of foul language. I do not like the vulgarity myself, and for a while I was able to tolerate the vulgarities; however, after a while the curse words, taking the Lord's name in vain, and talk of filthy acts got to me, and I decided that I did not want those types of thoughts in my head. The constant barrage of vulgarity eventually pollutes the mind, even for tolerant open minded persons (such as myself, right?) that can appreciate an off color joke now and then.


http://player.xmradio.com - XM Radio Online - The Player - Microsoft Internet Explorer
XM RADIO ONLINE
Lewis Black - Superbowl Redux - MTV
Luther Burbank Performing Arts
QUICK TUNE 150 GO
Connecting to media...
XM CHANNELS
WHAT'S ON
MY PRESETS
DECADES
COUNTRY
POP & HITS
CHRISTIAN
ROCK
HIP HOP & URBAN
JAZZ & BLUES
LIFESTYLE
DANCE
LATIN
WORLD
CLASSICAL
KIDS
NEWS
COMEDY
TALK
95 LUNA Latin Jazz LATIN
100 WORLD ZONE World Music WORLD
101 THE JOINT Your Daily Trip to Jamaica WORLD
102 NGOMA The Sound of Africa WORLD
110 XM CLASSICS The Greatest Music of the Last 1,000 Years CLASSICAL
112 VOX The Magic of the Human Voice CLASSICAL
113 XM POPS Classical's Greatest Hits CLASSICAL
116 XM KIDS The Next Generation of Radio... For the Next Generation KIDS
133 BOB EDWARDS SHOW Public Radio Legend NEWS
150 XM COMEDY - XL Everything Funny COMEDY
151 LAUGH USA Family Laughs and Fun COMEDY
202 HIGH VOLTAGE - XL Opie & Anthony - Outrageous Talk Radio TALK
XL = EXPLICIT LANGUAGE
SETTINGS
HELP
Done
Internet

2. **Poor Internet Reliability** – I also subscribed to XM radio via the Internet only to find that sometimes the service was unavailable over the Internet – even after following the XM Radio Help advice of rebooting the computer and taking other measures.

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3. **Talk Shows** – Next to comedy, the type of radio shows I like to listen to are news talk shows and news analysis shows. Unfortunately, XM Radio does not carry any of the many talk shows that I like to listen to frequently.

4. **Poor Reception** – I purchased the removable XM Radio device and I installed it myself in my Chevrolet Avalanche. The signal is picked up by the XM Radio device, and then transmitted to my automobile's stereo system on an FM bandwidth. At times, this works fine, for example when driving around my home area in Norcross, Georgia. Unfortunately I found that my XM system did not work well when I traveled or when I drove under power lines. The signal is horrible once I get about 12 miles away from my house. I guess you are supposed to tune in different FM radio channels to the XM Radio device as you drive, but doesn't this defeat the whole purpose? I can get radio stations for free that are susceptible to static when driving under power lines or traveling – why some I pay for the same thing – especially when the free radio stations provide the talk shows I would most like to hear?

5. **Removable Device** – The removable device option requires the use of my cigarette lighter for power. Therefore I cannot recharge my cell phone and listen to XM radio at the same time. Further, this solution results in cables hanging all over my dash board.

6. **Music Selection** – In an effort to appeal to the US market, XM radio appeals to no market. People have different tastes in different parts of the country, and while XM Radio plays songs I like under each genre, I find myself listening to too many songs that I do not like, or have never heard before. For example, XM Radio offers songs from the 50's, 60's, 70's, 80's and 90's, and I like music from each era. However, for every 2 songs I liked, XM played songs that were unknown to me or that I found really bad. I get better satisfaction from my local rock or oldies stations where research has been used to identify the top songs in those categories.

7. **Hidden Cancellation** – XM Radio does not make it easy to cancel your subscription, they do not provide that service on the Internet.

As an additional note, the last six times I have rented an AVIS rental car, I paid extra to rent a car with XM Radio. Unfortunately, AVIS has not provided a rental car with XM Radio for six consecutive car rentals, yet I still had to pay the higher fee. While not a big deal, I am not too happy about that either.

Well that's it. I tried it and was not impressed enough to keep the XM Radio subscription payments. If you do go with XM Radio, I strongly recommend that you have the XM Radio device installed, do not rely on the removable device – in fact you should probably have the system professionally installed. Also, you should write to the XM radio people and ask them to provide a family friendly comedy channel. These two improvements are needed before I will go back to satellite radio. Until then if you want to listen music from your favorite genre, burn a CD, buy an Mp3 player, or turn on the radio. It's free.

As for me, I am cranking out CDs of my favorite music and talk shows, and purchasing books on tape. I load then on my MP3 player (holds 40 GBs) and listen to them through my awesome Bose noise canceling head set. I find that this works very well.

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Sirius Satellite Radio

Ditto for Sirius, it appears that the same issues apply based on Sirus users I have talked to. As of May 2007, there are talks that XM and Sirius will merge, therefore there is a good chance that there will be little or no difference between these service moving forward.

USB

This is not your father's Universal Serial Bus interface. Sure USB ports were interesting when they first came out. Maybe you had a USB printer or possibly a USB scanner. But the older device parameters really cannot compare to the new and improved USB 2.0. USB 2.0 works in the same way as the original USB standard, and even looks the same. However it uses a much higher bandwidth, up to 40 times faster than the original standard. USB 2.0 also has the advantage of being backwards compatible with existing USB technology, so all your old devices will still work from a USB 2.0-capable system.

To give you some idea of why we're so worked up about USB 2.0, Pricegrabber.com indexes over 600 USB flash drives, 200 USB 2.0 hubs, 250 USB 2.0 scanners, and 725 external hard drives that utilize the USB 2.0 standard-clearly a dominant interface and data transfer method.

It seems like almost any device you want can be found in the USB specification, like this watch from Thinkgeek.com that features 512MB ($80-$200) of storage accessible through its built-in cable or this coffee warmer found at Sunbeamtech.com that connects to your computer through the USB standard. Kids microscopes nw connect to the computer and even a "Hello Kitty" MP3 player has a USB connection.

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USB 2.0 Benefits:

1) Powered interface- most USB 2.0 devices run off your PC's power supply- eliminating excess cords
2) Transfer speeds- 480Mbps = 40 times faster than USB 1.1's 12Mbps
3) Bootable- New computers can enable booting to flash drives instead of floppies and flash drives don't lose half their data if you drop them

Most systems manufactured in the last two years use USB 2.0 instead of 1.1, but if you really want to be sure checkout http://www.usbman.com/Guides/checking_for_usb_2.htm for a guide to determining your USB compatibility. The key word is ***Enhanced*** or highspeed rather than fullspeed. If you have an ***Enhanced*** USB Host Controller listed in your Device Manager profile then you have USB 2.0.

By far the most popular usage of the USB interface and it's most convenient feature is the ability to provide hot swappable data storage. USB flash drives, sometimes called thumb drives, contain no moving parts and can be inserted to any computer with a USB port and used to transfer data quickly. In a niche formerly occupied by floppy disks and then by writable CDs, USB 2.0 flash drives provide more speed, capacity and space savings than any other method. Certain flash drives like the Migo brand even feature proprietary software which allows you to work from another PC with all your familiar settings like favorites, Outlook contacts, emails, and reminders, even your desktop background-all are stored directly on the flash drive and leave no trace once the device is removed from any system you "visit". While writeable CDs should never cost you more than $.05 each (if not free after rebate) and the IEEE 1394 Firewire interface can prove faster-especially with digital video, USB 2.0 should be used in place of these solutions based on cost, convenience, and overwhelming compatibility.

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Top Tech Gadgets

Motorola ht820 Bluetooth Headset	
Bigha Complete Bicycle Bigha.com, $3,000 The Bigha design provides a full seat with seat back so the rider sits upright. Hands and wrists carry no body weight. Besides its comfy, recumbent seat, this souped-up commuter bike has 27 speeds, headlights, turn signals, a burglar alarm and a BMW-caliber display system with direction, altitude and weather condition, etc.s	
SwissMemory Multi-Tool $82 Equipped with the standard blade, nail file and screwdriver plus a USB flash drive with 128-MB memory, Swiss Army's new pocketknife is fit for a Bond, James Bond.	
Alexander McQueen Centurion Card (By invitation only) To celebrate the fifth anniversary of its ultra-exclusive Centurion black credit card, American Express unveiled an even more exclusive version: a limited-edition card by McQueen, complete with an X ray of the British designer's thigh-high sequined boots.	
A wrist watch with computer (from 1984)	
360° Globe Fan 360° globe fan circulates air and won't disturb papers on a desk. Modeled after bankers' fans of the 1920s and 1930s, this 3-speed fan has a blade that spins on a horizontal axis to take in air at the top and blow it out of the center of the fan cage housing. Integrated carry handle makes it easy to move.	

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Foldable Helicopter	
Lost in Space Robot - $24,500	
Jellyfish Aquarium For all of you who sit at your desks thinking, 'You know what this desk needs? Jellyfish. A Japanese company Banpresto developed some jellyfish thing: Banpresto's "Sea Cocktail" 11.7-inch tall monolith-like fish tank, illuminated by a series of colour-changing LED lights - Includes real jellyfish floating around inside.	
Toro iMow Robotic Mower $450 - This is a hands-free, battery-operated mower - Press the green "go" button and relax as the machine does all the work	
Corex CardScan Executive $149 - Scans business cards in seconds - Monochrome or color capability - USB power, and a two-year warranty with 30 day money-back guarantee -	
Logitech Cordless Click! Optical Mouse $26.94 - RF technology provides better performance than infrared.	
Casio Color Camera Watch $279 Take up to 100 full-color digital pictures, and download them to your computer. Color LCD screen plays the images back and displays the time, day and date. Print and email your photos to friends and loved ones. Includes all the software and connection cables to make picture transfer quick and easy. Watch features a chronograph, alarm, etc.	

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Abacus Wrist Net Round $129 With the Abacus Wrist Net watch with MSN® Direct service, you get information you need delivered to your watch so you're in the know while on the go. From new restaurants to sports scores, everything from the weather to your next appointment, all at a glance! Charger included. Requires MSN® Direct Subscription. Service available for $9.99/month or $59/year.	
Handspring Treo 600 $449 ($329 with cellular contract) - Functionality of a high-end PDA - Cell phone - Backlit QWERTY keyboard - Digital camera all in a single device - Sync up to transfer your contacts to your PC's Outlook	
Samsung SPH-i700 $599 with 2 year contract - Pocket PC Phone Edition software applications - Take, view, store and send pictures wirelessly and in full color using the built-in digital camera - Synchronize your phone and PC calendars using ActiveSync - Play games and download music and video files	
I-Cybie $89.95 - Robotic trainable dog	
ERS-7 AIBO® Entertainment Robot $1,599 - Built-in wireless LAN connectivity - Understands 100+ words/phrases - Recognizes owner's face and voice	

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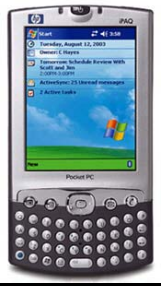
Linksys Bluetooth USB NIC $44.99 - Add local wireless connectivity to any USB equipped computer	
Logitech QuickCam Pro 4000 $79.99 - Create videos and shoot 1.3-megapixel still photos	
HP iPAQ Pocket PC h4150, h4350 $499 - Integrated QWERTY keyboard - Bluetooth - 802.11b Wifi	
Stowaway XT keyboard for Pocket PC $99 - QWERTY layout - Plug and Play	
4GB IBM/Hitachi Microdrive $299 - Smaller than the footprint of a floppy disk - weighing only 2 ounces - Compact Flash Type II interface - Actual moving parts, not flash memory	
LACIE Big Disk 1.6TB Triple Interface Hard Drive - $2,019 - 1,600 GBs of storage space - Compatible with Firewire 800, 400, USB 2.0	

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Sandisk SD I/O Wifi card $99 - Allows your I/O equipped PDA or cell phone to access Wifi networks	
Sharp Actius MM10 notebook $1,499 - 2.1 lbs - .54 inches thick - 9 hours battery life with optional high capacity battery - Functions as an external USB 2.0 hard drive which can connect through docking cradle even when powered off	
PNY Executive Attaché USB flash drive/pen $70 - Functional pen with USB 2.0 flash drive - 128MB, 256MB, and 512MB sizes	

Spy Gear

Advancements in technology continue to produce a wide variety of gadgets and gizmos of every size, shape, and purpose. Some of these items are promoted as spy gear and it probably is a good idea for business people to be aware of the existence of some of these tools – not so much to help you become a spy, but more so to help you avoid being spied upon. Presented below are a few representative examples. One needs only search the internet to find hundreds of sources for these items. Please note that some of these items are available only to law enforcement and buyers outside the US.

Keystroke Recorder (Keylogger)
Can be installed on a system where the password is unknown. Use with any PC operating system (Windows, OS2, Linux, Free BSD, etc.). Records everything, even BIOS passwords, where software loggers have not even started running yet. Uses no system resources. Can store more than 256,000 keystrokes ! U.S. $ 195.00

Wrist Watch Digital Camera
8M SDRAM allows storage of up to 26 VGA high resolution 350,000 pixel pictures. Auto exposure, auto white balance, edge detection with enhancement and back light compensation. Upload images to a Palm PDA, or PC. One AAA battery not included. Images are displayable on your PC in 16.7M (32-bit) color Comes with a USB wire link and a CD Rom so you can transfer and save the pictures into your computer. U.S. $ 450.00

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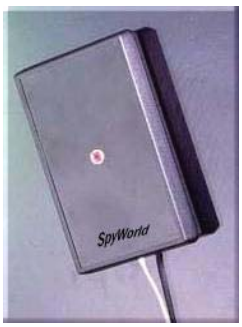
Tele Monitor 2000

Discreetly listen in on your premises via regular telephone lines from any telephone in the world! Requires no activating beeper or whistle and does not affect normal incoming and outgoing calls. Up to 4 units per line. Sensitive microphone will pick up even a whisper up to 35 feet away. To monitor, just dial your phone number from any tone telephone. (limited to 5 minutes of monitoring), To extend the time you need only press a number from your telephone keypad. Size : 5 1/2" x 3 1/2" x 1" This is a completely self-contained unit - no actual telephone required. It comes with modular plugs for instant connection to telephone jacks - needs no batteries. U.S. $ 379.95



Super Ear

It increases your ability to hear the sounds around you - indoors and out. Spy on sensitive conversations. Hands-free listening, delivers a full 50+db of sound gain. Measures 3 1/2 x 1 3/4 x 3/4. Comes with earphones and binocular mounting - clip. U.S. $ 78.95

Bug Detector

Modern day miniature "bugs" can be hidden anywhere. Listening devices can be easily planted in places like your office, residence, hotel etc. The Bug Detector not only tells if a bug is present, there are 3 LEDs: Level 1 (Weak), Level 2 (Medium), Level 3 (Strong), indicating the strength of the detected signal. You can zero-in on its exact location. From 50 Mhz to 3 Ghz , you choose to leave the bug or destroy it. All this can be done without alerting eavesdroppers. It can also detect wireless camera, wireless phone, wireless tap, and cell phones. Size: L 3.5" x W 2.1" Power: (AAA battery x 2) U.S. $ 239.95

Telephone Tap Detector

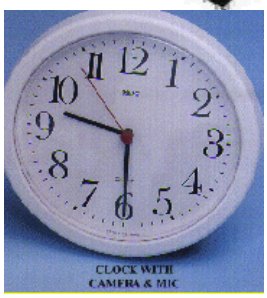
Instantly tells you if there is a tap or eavesdropper on the line. Automatically mutes your call if a tap is enabled while you are talking. U.S. $ 269.95

Cellular Voice Encryption

The Cellular Voice Encryption snaps on to the dataport of an Ericsson cellular phone (included) working over the GSM network. It uses 256 Bit AES encryption algorithm which is the most advanced encryption standard for voice communication, even more advanced than the DES standard. Transparency operation, no action required by user. Military strength - offers voice protection against virtually all determined listeners. ** Price per unit - 2 units are needed (one at each side of the conversation). U.S. $ 2,200.00

Clock Camera

Clock Camera hides a wide angle lens behind the face - invisible no matter how hard you look! The camera has high resolution and has an electric iris for clear viewing in low light situations. The camera plugs in to a TV monitor or VCR. 12V power supply included. U.S. $ 359.95



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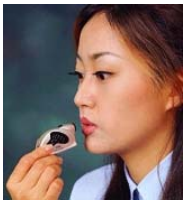
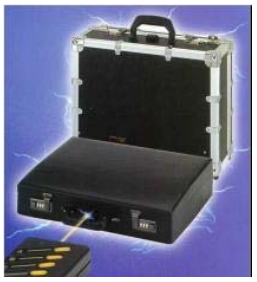
Key Chain - Alcohol Breath Analyzer
Breath Analyzer is a sensitive instrument measures breath alcohol content to equivalent blood alcohol content (BAC) within seconds. Shows 5 progressive key concentration levels denoted by a color coded LED display. U.S. $ 149.00



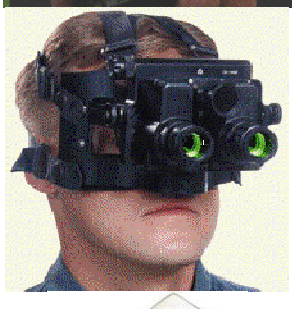
50,000 Volts Shocking Briefcase
The Remote Control Shocking Briefcase and Money Carrier, if it is picked up to 30 degrees out of its horizontal position, without being disarmed, the briefcase will give a 5 second 85dB warning siren and then shock the would-be thief at 50,000 volts of power. Also, when the briefcase is being carried, a thief may attempt to steal it, however with its' four function remote, you can allow the would-be thief to get well away from you, up to 500 ft. (well over the length of a football field) to avoid confrontation and then... press the remote control key to shock them with 50,000 volts !! $ 699.00



Dummy Security Video Camera
Authentic looking camera simulates a high tech security system and makes crooks think twice. Flashing red LED fools unwanted visitors into thinking they are being watched. Uses 2 AA batteries. U.S. $ 39.95

Mini Night Vision
The world smallest night vision unit with a built-in infrared illuminator. You will see even in total darkness! Good for spying. Measures 5-1/4 x 2- 1/2 inches. 1.6 x magnification. Amplifies light 15,000 times. Comes with carrying case. Requires AAA batteries. U.S. $ 435.95

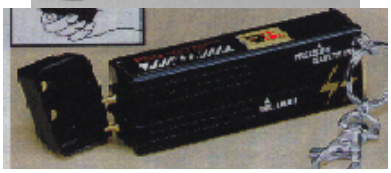
Cobra Vision
These goggles were originally developed for Soviet Air Force pilots who required hands-free night vision. Helicopter pilots, paratroopers and tact-ops commandos also use them. They amplify light 20,000 times. Infrared illuminator allows you to see in total darkness. Wide, 36 deg. field of view. Adjusts to fit any size head. Dust, shock and water-resistant. U.S. $ 795.95



The Truth Machine
Pocket-sized device that monitors the truth behind someone's words by responding to voice changes and inflections. The device is equipped with a highly sophisticated program and computer chip that allow it to work on the same principle as a lie detector. It is extremely sensitive to stress and subtle changes in voice inflection as an indicator of truthfulness. U.S. $ 89.95

Acoustical Jammer
Secure your room conversation. It works by generating unfilterable random white noise. This desensitizes any microphone - based eavesdropping. The Jammer also protects you from tape recorders, shotgun mics, wired devices, microwave and laser pickups. U.S.
$ 275.95

Mini Stun Gun
The world's smallest stun gun (the size of a pack of gum). It has enough juice to stun a 300lb. attacker without permanent damage. Simply touch the attacker's skin or clothes to deliver a 400 volt charge! Attach to belt or key ring, safety pin prevents any accidental discharge. U.S. $ 43.95



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Pro Track 1

Digital Vehicle Tracking System. Tracking range about 3 miles. Digitally encrypted signaling (confidential to owner). Displays ID code of your target transmitter. Simultaneous monitoring of up to 10 targets. Displays distance to target in feet (from 75 to 65,000) Available optional transmitters: Magnet Mount Vehicle Tracker, Body Transmitter, Belt Clip Transmitter, Child monitoring (kidnap) Transmitter. U.S. $ 2,850.00

Peephole Reverser

Developed to assist law enforcement officials to assess potential threats or activity behind closed doors, these units are now available to the public. Simply place the lens over the peephole and you can see into the room without alerting anyone inside by negating the peephole's lens. Length: 2.7" weight: 1.5 oz. U.S. $ 89.95

Spy Phone

It may look like a regular Nokia Cellular phone, however this Super technology goes beyond its standard capabilities. It operates as a normal cellular phone - but when the phone is called in on a special "Spy" mode (from anywhere in the world) it will automatically answer without any ringing or lights coming on and the display stays the same as if it is on a "Standby Mode". While on the "Standby mode" it will pickup the sounds nearby and transmit them back to you (the caller). All you have to do is to activate it as if you would activate any cellular phone. Talk Time: 3 to 4 Hours. Standby Time: up to 6 Days. Weight: 2.8 oz. Technology: GSM standards for U.S. - Europe - Asia.
NOTE : Except for Law Enforcement, this item is not available to U.S. residents. U.S. $ 2,400.00

Micro UHF Room Transmitter

Transmitter - This powerful little device has a 5 day battery life and can be concealed almost anywhere. It will pick up the slightest whisper from up to 40 feet away and transmit to our UHF receiver with amazing clarity up to a distance of 600 meters. - Dimensions: 6.5 cm. x 3 cm. x 1 cm.

Receiver - About the size of a cigarette pack, this is a state of the art two channel UHF receiver. Recently upgraded, its' sensitivity is incredible. It is capable of receiving the signal from our UHF transmitter for long range use with amazing clarity. A recorder can be connected to the receiver so the user can record all conversations and listen, too.
Please note this item is NOT available to U.S. residents U.S. $ 1,370.00

Envelope X-ray Spray

Envelope X-RAY Spray turns opaque paper temporarily translucent, allowing the user to view the contents of an envelope without ever opening. 30 seconds after application, the envelope will return to its' original state, leaving absolutely no markings, discoloration or other indications of use. Each can treats several hundred square inches. Non-flammable, non-conductive and non-photochemically reactive. Environmentally-friendly (contains no Freon). Net weight: 8 oz. WARNING: Not to be used on U.S. Mail, except by or with the express permission of the addressee. Cannot ship by Air. U.S. $ 45.95

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Air Taser

The AIR TASER is a small handheld self-protection system which utilizes compressed air to shoot two small probes up to 15 feet away. These probes are connected by wire to the launcher which sends a powerful electric signal into the nervous system of an assailant. This causes the body to go limp as the brain loses control over the rest of the body. The TASER is highly effective because the electrical signal penetrates the nervous system regardless of the placement of the probes. U.S. $ 395.95

Fiber Optic Snake Camera

Snorkel Camera Tube Camera, Spy Camera, all in one. The remote head of this color video camera is the smallest on the market, measuring only .29" in diameter and 1.4" in length, comes with a micro 3.9mm lens. Optional built in light source (measures .55" diameter and 4" in length). The remote head is connected to the miniature control unit by a 38" super flexible cable. Great for surveillance under the door, tight places, machine vision, robotics, and quality control. US $1,398

Hidden Camera

Smoke Detector Camera hides a wide angle lens behind the face plate. Totally invisible no matter how hard you look! High resolution with electric iris for clear viewing in low light. It also contains a hidden microphone for audio. Comes with 12V power supply, and high ceiling mount. Wireless or wired, color or B&W camera, your choice. US $389.95 wired, $689.95 wireless.

MOBIL TRACK

Monitor detailed information about a vehicle's travel activities, the data recording system allows you to review the information after the fact without actually being there. Using a satellite positioning network (GPS) cross referenced with digital street maps of the continental USA, the Mobile Track system and computer software can be used to accurately evaluate travel activities, with proof of exact date, time, speed, and location right down to the street level. The Mobile-Track software mapping will show the exact track that the vehicle traveled, with timing to the second. The unit goes into sleep mode when the vehicle is stationary to extend battery life. US $2,495

Telephone Voice Changer

The Telephone Voice Changer incorporates an eight-level pitch adjustment. At the high range a man's voice will sound like a woman. At low range a woman will sound like a man. A built-in amplifier can increase the sound of the incoming voice. It installs by plugging in to the base and handset of the telephone. US $59.95

UV Pen

The ink in this pen is invisible to the naked eye, so any paper you write on will appear to be blank. However, under a UV light source, your "secret message" will appear. Possible technique for securing passwords without leaving them visible in workspace area. US $5.95

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Cellular Blocker

The systems utilize a unique transmission method that confuses the decoding circuits of cellular handsets as if no cellular base station is within the service area. Upon activating the Blocker, all idle phones will indicate "NO SERVICE". Consequently, all cellular phone calls already in progress within the defined area will be cut-off and the radio link will be lost. When activated, incoming calls are handled as if the cellular handset is OFF and calls may be routed into a voice mailbox. When the Blocker is turned off, all cellular handsets will automatically re-establish communications with the cellular systems and provide full service. US $1,948

Disguise your voice for any telephone conversation - $125

Powered Listening Device

For applications where continual access is a problem or battery life is a consideration, the mains adaptor is ideal. Once fitted, it will transmit crystal clear conversations up to a distance of 500 meters away and requires no batteries. It is fully functional and when plugs are inserted, it will continue to perform. There are two types of adaptors available. $408.00

LISTEN THROUGH THE WALL DEVICE

This device is used to listen through walls. It is capable of listening through up to 60cm of solid concrete, doors, windows e.t.c. The user can also record if required. US $219.00

Long Range Tracking Kit:

Small transmitter (just 80 gramms with its battery) and a receiver. The receiver, with a set of LEDs will pinpoint the direction of the transmitter while also emitting a higher pitch. If the transmitter is in motion the signal will be transmitted each second. Otherwise the system will receive a signal each 10 seconds. It has a capability of up to 6 miles (10 km) in rural areas and up to 2.5 miles (4 km) in built up areas. The distance is indicated by the transmitter signal strength. The transmitter can be switched ON and OFF by the receiver. The transmitter has a battery life of 20 days.The receiver is capable of picking up 99 transmitters. US $1,550.00

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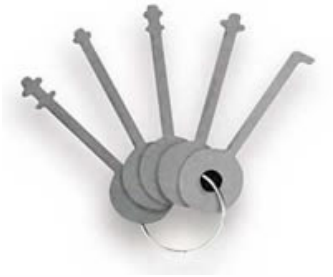
Pick for Schlage Wafer Locks - $16.95

Warded Padlock Picks (Stainless Steel) $11.95

These picks are used for the warded padlocks, not seem as often as a few years ago, but a must if your intend on opening one. Made of corotion corrosion proof stainless steel!



Gas Cap Pick Tool - $11.95

This specially designed tool will open any locking gas cap

UNLOCK Technologies(tm) Pick Gun by BROCKHAGE - $44.95

This pick gun can be used to open most pin tumbler locks. It can work as fast as 2 seconds to a few minutes. Some beginners report that it takes time to learn how to use this tool, but as the more they practice the faster they are able to open the lock.

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Wireless Networking & Internet Hotspots

Chapter 7

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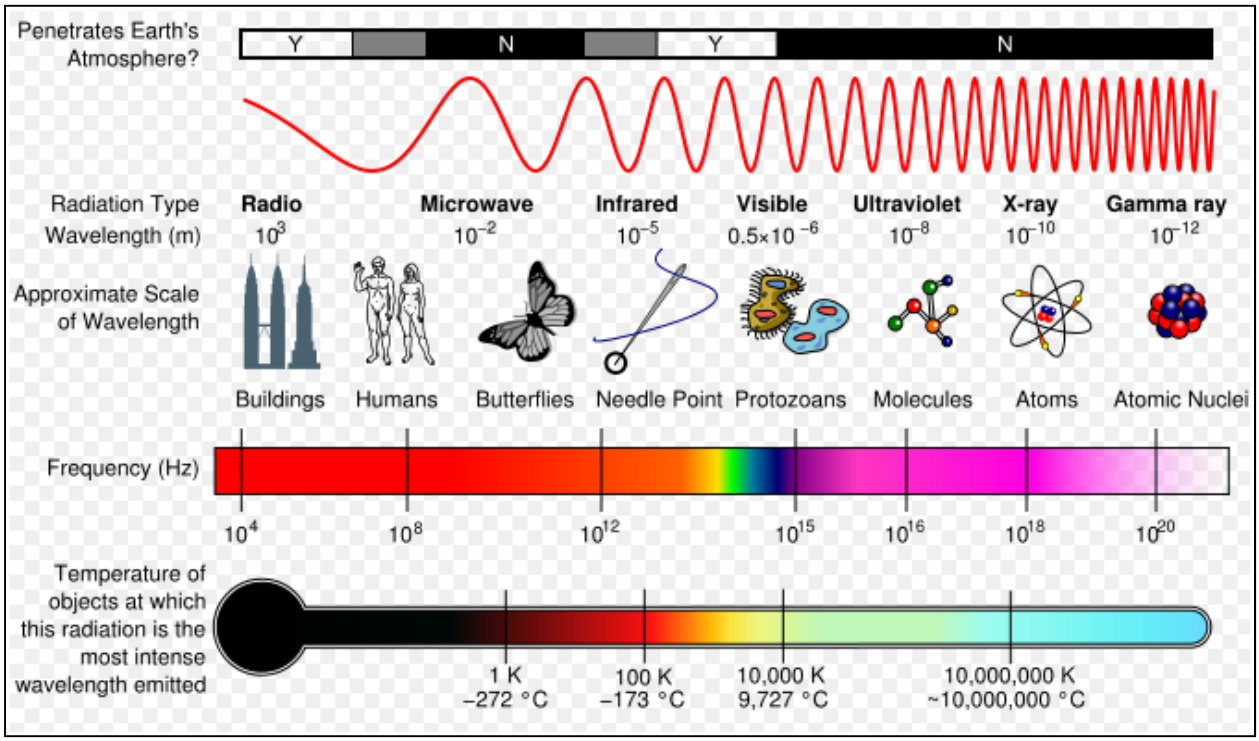
The Electromagnetic Spectrum

Generally, Electromagnetic radiation is classified by wavelength into radio wave, microwave, infrared, the visible region we perceive as light, ultraviolet, X-rays and gamma rays. The behavior of EM radiation depends on its wavelength. When EM radiation interacts with single atoms and molecules, its behavior also depends on the amount of energy per quantum (photon) it carries.



Fancy Talk & Impressive Formula - EM waves are typically described by any of the following three physical properties: the frequency f, wavelength λ, or photon energy E. Wavelength is inversely proportional to the wave frequency, so gamma rays have very short wavelengths that are fractions of the size of atoms, whereas wavelengths can be as long as the universe. Photon energy is directly proportional to the wave frequency, so gamma rays have the highest energy (around a billion electron volts) and radio waves have very low energy (around femto electron volts). These relations are illustrated by the following equations:

$$f = \frac{c}{\lambda}, \quad \text{or} \quad f = \frac{E}{h}, \quad \text{or} \quad E = \frac{hc}{\lambda},$$

where:

c = 299,792,458 m/s is the speed of light in vacuum and
h = 6.62606896(33)×10−34 J s = 4.13566733(10)×10−15 eV s is Planck's constant.

Electromagnetic radiation interacts with matter in different ways in different parts of the spectrum. The types of interaction can be so different that it seems to be justified to refer to different types of radiation. At the same time, there is a continuum containing all these

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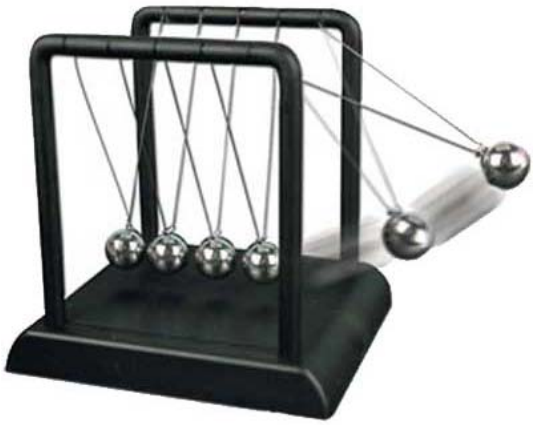
"different kinds" of electromagnetic radiation. Thus we refer to a spectrum, but divide it up based on the different interactions with matter.

Region Of The Spectrum	Main Interactions With Matter
Radio	Collective oscillation of charge carriers in bulk material (plasma oscillation).
Microwave - far infrared	Plasma oscillation, molecular rotation
Near infrared	Molecular vibration, plasma oscillation (in metals only)
Visible	Molecular electron excitation (including pigment molecules found in the human retina), plasma oscillations (in metals only)
Ultraviolet	Excitation of molecular and atomic valence electrons, including ejection of the electrons (photoelectric effect)
X-rays	Excitation and ejection of core atomic electrons, Compton scattering (for low atomic numbers)
Gamma rays	Energetic ejection of core electrons in heavy elements, Compton scattering (for all atomic numbers), excitation of atomic nuclei, including dissociation of nuclei
High energy gamma rays	Creation of particle-antiparticle pairs. At very high energies a single photon can create a shower of high energy particles and antiparticles upon interaction with matter.

While not technically accurate, it helps to visualize communications this way: Electrons vibrate more slowly at one end of the EM spectrum, and faster at the other end of the EM spectrum. When you speak through a cell phone to a person in New Zealand, your voice is converted into digital signal which is then carried to New Zealand by atoms vibrating at the same speed. Each vibrating electron affects the adjacent electron with the same digital signal, and so on, and so on all the way around the world. This happens eloquently like the silver balls in the Newton's Cradle pictured below.



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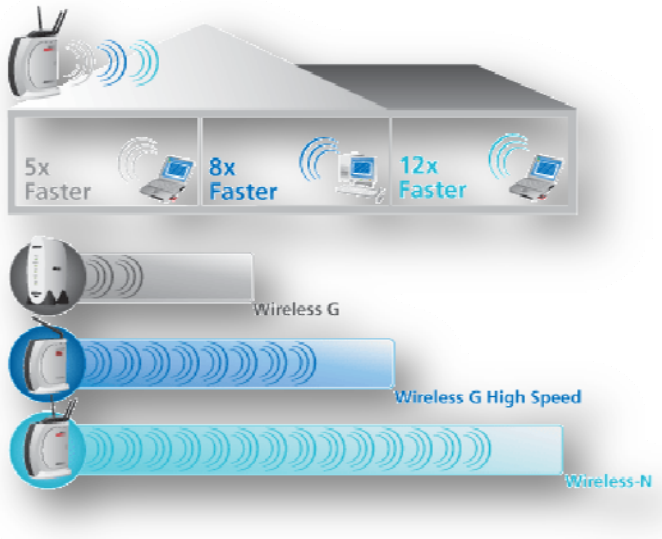
Wi-Fi - MIMO and N

Wireless technology has become the de facto networking standard, from hotspots to homes, even small businesses are beginning to reap the benefits of low installation costs and convenient fast throughput. While any Wi-Fi connection, even a weak one, is adequate to surf the Internet and transfer data, if distance and obstacles sap too much bandwidth from a network, high volume or streaming content such as video can begin to break up or degrade. With the growing popularity of home theatre personal computers (HTPCs), Personal Video Recorders (PVRs) such as Tivo, and voice over internet protocol (VOIP), and other bandwidth intensive applications, the need for a long range stable wireless standard is more apparent than ever.

One technology that has delivered greater range and faster more reliable throughput is an innovation called MIMO, short for multiple input, multiple output. This new technology was originally referred to initially as Pre-N, and later as DRAFT-N and now as “N” or “MIMO”. It uses a number of antennas to overlay the signals of two or more Wireless-G compatible radios, MIMO effectively increases the wireless data rate from 54 Mbit/s to 600 Mbit/s with the use of four spatial streams at a channel width of 40 MHz.



MIMO overcomes the weaknesses of other wireless networking technologies that are confused by signal reflections, instead using reflections to increase the range and reduce "dead spots" in the coverage area. The stronger signal allows for wireless connections up to 3 times farther than standard than those possible with regular G networks. Additionally, by utilizing the reflected signal, MIMO can also hypothetically increase throughput about 8x more than regular G. MIMO routers avoid interference by dynamically switching to the clearest channel available.

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MIMO technology uses multiple antennas to resolve more information than possible using a single antenna. One way it provides this is through Spatial Division Multiplexing (SDM). SDM spatially multiplexes multiple independent data streams, transferred simultaneously within one spectral channel of bandwidth. MIMO SDM can significantly increase data throughput as the number of resolved spatial data streams is increased. Each spatial stream requires a discrete antenna at both the transmitter and the receiver. In addition, MIMO technology requires a separate radio frequency chain and analog-to-digital converter for each MIMO antenna which translates to higher implementation costs compared to non-MIMO systems.

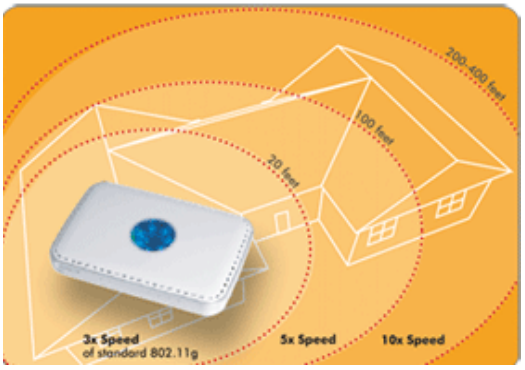

Diagram of proposed speed increase using a Netgear WIMAX WPN824 router with Smart

40 MHz channels is another feature incorporated into 802.11n which doubles the channel width from 20 MHz in previous 802.11 PHYs to transmit data. It can be enabled in the 5 GHz mode, or within the 2.4 GHz if there is knowledge that it will not interfere with any other 802.11 or non-802.11 (such as Bluetooth) system using those same frequencies.

Linksys WRT300N

WiMAX

WiMAX (Worldwide Interoperability for Microwave Access) is a telecommunications technology that provides fixed and fully mobile internet access. The technology provides up to 30 Mbps in real world end-user throughput. WiMAX is based on the IEEE 802.16 standard (also called Broadband Wireless Access). WiMAX offers an acceptable alternative to cable and DSL.

Because of it's ability to span long distances up to 34 miles and deliver data at 1 gigabit per second, WiMAX is dramatically superior to the previous wireless standards such as "a", "b", "g", and even "n".

On May 7, 2008, Sprint, Nextel, Google, Intel, Comcast, Bright House, and Time Warner announced a pooling of an average of 120 MHz of spectrum and merged with Clearwire to form a company called "Clear". The new company hopes to leverage this technology along with their combined services offerings to springboard past their competitors. The cable companies will provide media services to other partners while gaining access to the wireless network as a Mobile virtual network operator to provide triple-play services.

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The Basics - What is Wi-Fi?

Wireless Fidelity hardware uses radio technology in the 2.4GHz or 5GHz range. Wi-Fi technology currently supports three main standards called 802.11a, b, and g, each with varying degrees of compatibility and connectivity.

Wireless Standard	Frequency	Range/ Interference	Maximum Possible Throughput
802.11a	5GHz	short range, easily obstructed	54Mbps
802.11b	2.4GHz	long range, high signal integrity	11Mbps
802.11g	2.4GHz	long range, high signal integrity	54Mbps
Super G G standard using dual channels	2.4GHz	long range, greater vulnerability to interference due to using greater amount of available spectrum	108Mbps Only possible with other Super G devices
802.11n	2.4GHz or 5.0 GHz	Long range	300 Mbps
802.16e 802.16m	10 GHz to 66 GHz and 2GHz to 11GHz	long range, covering 18 to 34 miles	1,000 Mbps
Bluetooth- Typically used to connect cellular phones and wireless headsets	*2.45GHz*	*No native support for IP, so it does not support TCP/IP and wireless LAN applications well. Not originally created to support wireless LANs. Best suited for connecting PDAs, cell phones and PCs in short intervals.*	*2 Mbps*

Backward compatibility - When 802.11g was released to share the band with existing 802.11b devices, it provided ways of ensuring coexistence between the legacy and the new devices. 802.11n extends the coexistence management to protect its transmissions from legacy devices, which include 802.11g, 802.11b and 802.11a.

Access Points - A Wi-Fi hotspot is created by installing an access point to an internet connection. The access point transmits a wireless signal over a short distance — typically covering around 300 feet. When a Wi-Fi –enabled device, such as a Pocket PC, encounters a hotspot, the device can then connect to that network wirelessly. Most hotspots are located in places that are readily accessible to the public, like airports, coffee shops, hotels, book stores and campus environments.

Where can I find a Wi-Fi hotspot?

Other than ISP and hotspot provider websites, users can locate hotspots using the internet prior to traveling. www.WiFreespot.com and www.Wifinder.com both feature databases of active hotspots. Wi-Fi internet access costs vary depending on the Wi-Fi service provider and the access plan type, typically daily, monthly, or hourly.

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Like a public hotspot, homes and businesses can support a Wi-Fi network by adding a wireless access point and equipping the PCs and networked devices with wireless network adapters or WLAN cards.

Equipment needed for Home or Office Wi-Fi network

1. **Access Points** – Many companies offer wireless routers that perform all the functions of an access point and with the additional security of an integrated firewall.

NETGEAR Wireless-N Router WNR2000 - wireless router — In Stock — $79.99

N Router WNR2000 - Wireless router + 4-port switch - Ethernet, Fast Ethernet, 802.11b, 802.11g, 802.11n (draft 2.0) - external

MFG #: WNR2000-100NAS | CDW #: 1638558

See All: Wireless Broadband Routers

Add To Cart

Linksys Wireless-N Broadband Router with Storage Link — In Stock — $106.99

Wireless-N Broadband Router with Storage Link

MFG #: WRT160NL | CDW #: 1753092

See All: Wireless Broadband Routers

Add To Cart

Cisco WRVS4400N Wireless-N Gigabit Security Router - VPN — In Stock — $224.99

• Secure, high-speed wireless network access for small business • Gigabit Ethernet connections enable rapid transfer of large files • Advanced security, including intrusion prevention, helps keep assets safe

MFG #: WRVS4400N | CDW #: 1028226

Add To Cart

D-Link DIR-615 Wireless N Router — In Stock — $62.99

802.11n Wireless N Router

MFG #: DIR-615 | CDW #: 1220620

See All: Wireless Broadband Routers

Add To Cart

2) **Wlan Cards And Adapters** – For desktop computers, notebooks and PDAs without integrated Wi-Fi, the addition of a wireless adapter is a simple and convenient way to enable wireless connectivity on your device.

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Linksys Wireless-G PCI Card — In Stock — $49.99

54Mbps Wireless G Wireless PCI Network Interface Adapter Card (NIC)

MFG #: WMP54G | CDW #: 452911

See All: Wireless Adapters

Add To Ca

Hawking HWUG1 Wireless-G USB Adapter — In Stock — $53.99

108Mbps 802.11b/g Wireless USB Network Interface Adapter with Removable Antenna

MFG #: HWUG1 | CDW #: 1038208

See All: Wireless Adapters

Add To Ca

3Com 11a/b/g Wireless PCI Adapter - network adapter — In Stock — $89.99

Network adapter - PCI - 802.11b, 802.11a, 802.11g

MFG #: 3CRDAG675B | CDW #: 849210

See All: Wireless Adapters

Add To Ca

Belkin Wireless G USB Network Adapter — In Stock — $39.99

Network adapter - Hi-Speed USB - 802.11b, 802.11g

MFG #: F5D7050 | CDW #: 674432

See All: Wireless Adapters

Add To Ca

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Wireless Security

The use of a wireless device provides an invisible access point into your computer network in a range up to 300 feet radius from your wireless device. Hackers use empty tennis ball cans to build devices designed to detect and boost your signal, like the device shown below.

Many users setting up wireless home and small office networks rush through the job to get their Internet connectivity working as quickly as possible, but the fail to take the additional measures needed to properly lock down this new access point. The recommendations below summarize the steps you should take to improve the security of your home wireless network.

1. **Change Default Administrator Passwords (and Usernames)** – The first order of business is to log into your wireless device settings and change the default username and password. The default login name and password is usually "admin" and "password" – and all of the hackers out there know this. Therefore you should change these settings immediately. Here's how:

   a. *First, you must be connected to the wireless device with a physical wire (such as an Ethernet cable), you sometimes cannot do this wirelessly.*

   b. *Log In to the Network Router by typing the following into your browser: HTTP://192.168.0.1 or whatever IP address is printed on the bottom of the wireless device, if different.*

   c. *Navigate the menu to the Router's Change Password Page.*

   d. *Choose and Enter a New Password.*

   e. *Save the New Password.*

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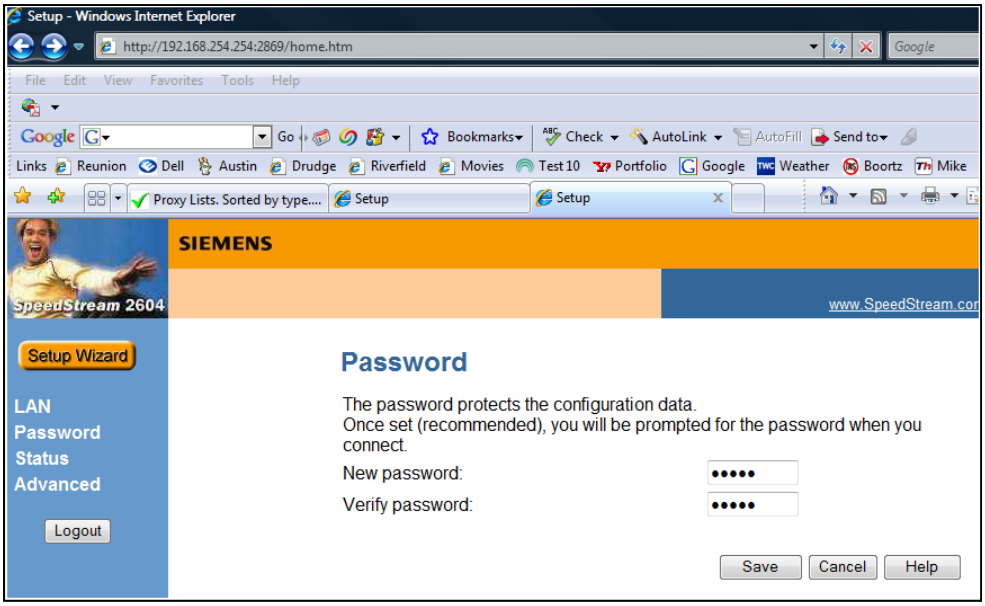

2. **Turn on WPA2 or WPA Encryption -** All Wi-Fi equipment supports some form of encryption scheme as follows:

    a. **WEP** (Wired Equivalent Privacy) – Found to have serious shortcomings in 2001.
    b. **WEP 2** – Also, found deficient, WEP2 mutated into TKIP.
    c. **WEPplus** – Lucent's attempt to correct WEP shortcomings, but this fell short.
    d. **Dynamic WEP** – 3COM's attempt to correct WEP shortcomings which fell short.
    e. **WPA** (Wi-Fi Protected Access) - the answer to WEP.
    f. **WPA2.0** – Better than WPA, but does not always work with older devices.
    g. **WPAPSK-TKIP** – Software driven
    h. **WPA2PSK-AES** – Hardware driven
    i. **WPA2PSK-TKIP** – Software driven

    Encryption technology scrambles messages sent over wireless networks so that they cannot be easily read. Several encryption technologies exist for Wi-Fi today. Naturally you will want to pick the strongest form of encryption that works with your wireless network. However, the way these technologies work, all Wi-Fi devices on your network must share the identical encryption settings. Therefore you may need to find a "lowest common denominator" setting. Here's how you set up WPA:

    a. *First, verify that each computer is running Windows XP Service Pack 1 (SP1) or later.*

    b. *On each computer, verify that the client's network adapter is compatible with the **Wireless Zero Configuration (WZC) service**. (To do this, consult the adapter's product documentation, manufacturer's Web site, or appropriate customer service line for details. Upgrade the network adapter driver and configuration software to support WZC on clients where needed).*

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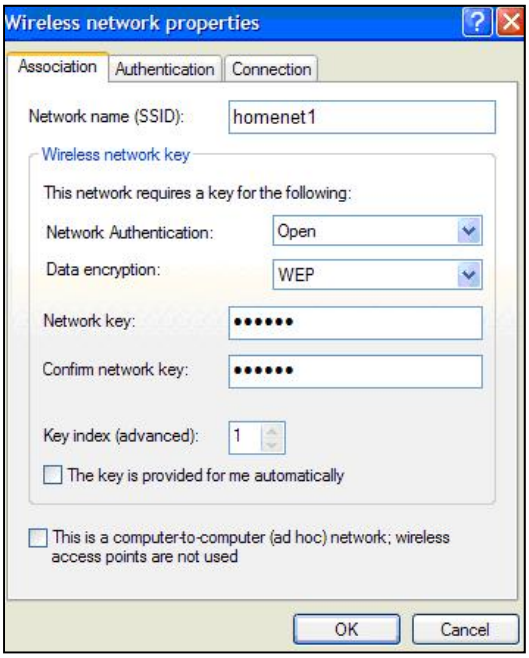
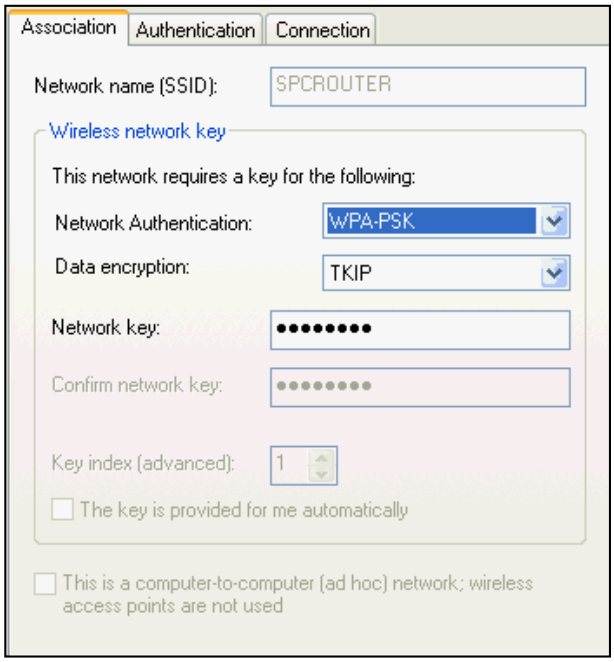
c. *For each computer, download and install the Windows XP Support Patch for Wi-Fi Protected Access, walk through the installation dialog boxes and following the instructions.*

d. *Continue following the instructions and configure all **Wireless Access Points** (your wireless devices).*

e. *Continue following the instructions and configure all **Wireless Network Adapters** (your LAN cards).*





3. **Change the Default SSID -** Access points and routers all use a network name called the SSID. Manufacturers normally ship their products with the same SSID set. For example, the SSID for Linksys devices is normally "linksys." True, knowing the SSID does not by itself allow your neighbors to break into your network, but it is a start. More importantly, when someone finds a default SSID, they see it is a poorly configured network and are much more likely to attack it. Change the default SSID immediately when configuring wireless security on your network.

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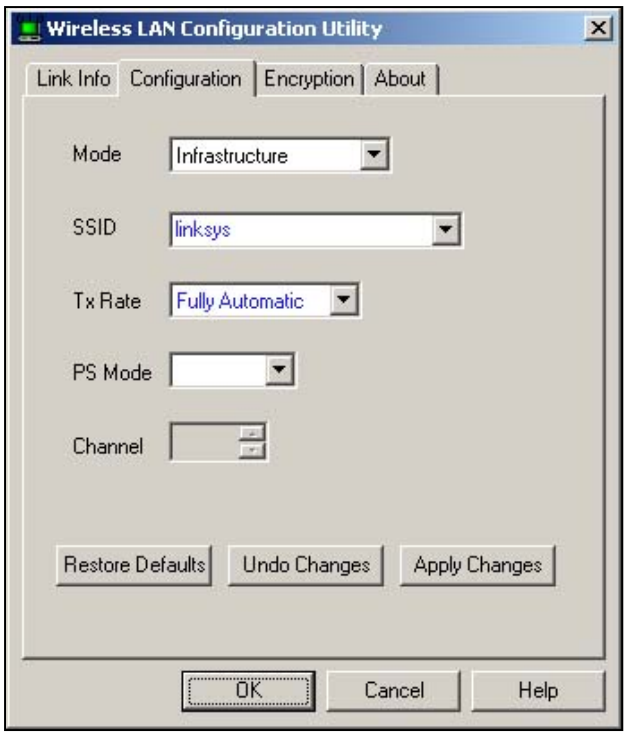

a. Log In to the Network Router
b. Navigate to the Router's Basic Wireless Settings Page
c. Choose and Enter a New SSID
d. Save the New SSID

4. **Enable MAC Address Filtering -** Each piece of Wi-Fi gear possesses a unique identifier called the physical address or MAC address. Routers keep track of the MAC addresses of all devices that connect to them. Many routers offer the owner an option to key in the MAC addresses of their home or small business equipment which restricts network connections to those devices only. Here's how:

a. To set up MAC address filtering, first prepare a list of computers and devices that will be allowed to join the network.

b. Next, obtain the MAC addresses of each computer or device from its operating system or configuration utility.

c. Next enter those addresses into a configuration screen of the wireless router. An example screen is shown below.

d. Finally, switch on the filtering option.

e. Once enabled, whenever the wireless router receives a request to join with the WLAN, it compares the MAC address of that client against the administrator's list. Clients on the list authenticate as normal; clients not on the list are denied any access to the WLAN.

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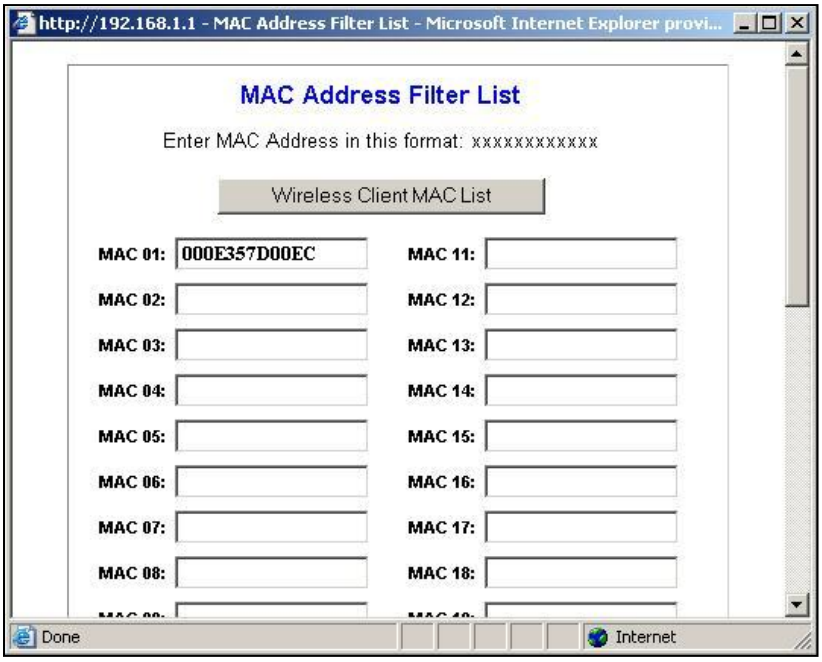
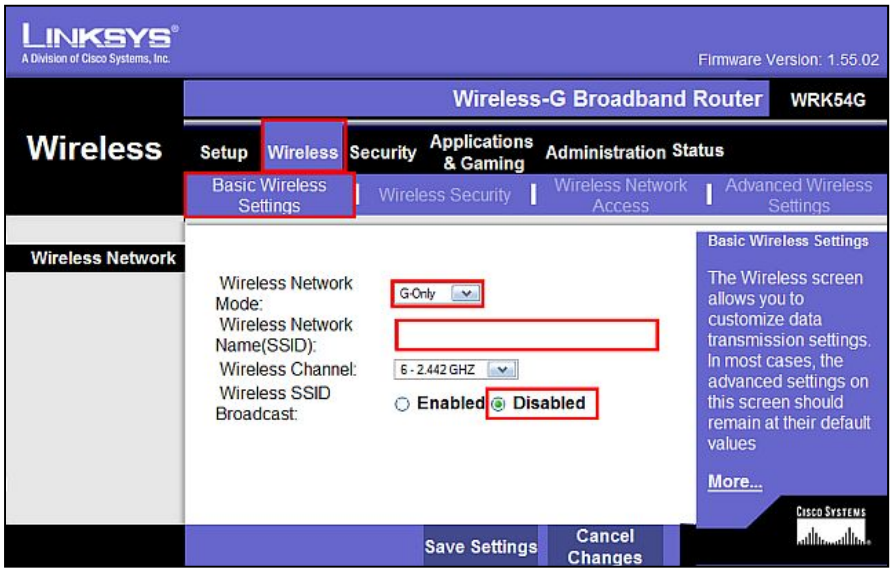


(While this feature represents yet another obstacle/deterrent to hackers, there are many software programs available that enable hackers to defeat this measure by easily faking a MAC addresses.)

5. **Disable SSID Broadcast -** In Wi-Fi networking, the wireless router typically broadcasts the network name (SSID) over the air at regular intervals. This feature was designed for businesses and mobile hotspots where Wi-Fi clients may roam in and out of range. In the home or small business, this roaming feature is probably unnecessary, and it increases the likelihood someone will try to log in to your home network. Fortunately, most Wi-Fi access points allow the SSID broadcast feature to be disabled by the network administrator. To do this simply log into your wireless router device, navigate to the SSID menu, and click the disable button as shown below.



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6. **Do Not Auto-Connect to Open Wi-Fi Networks -** Connecting to an open Wi-Fi network such as a free wireless hotspot or your neighbor's router exposes your computer to security risks. Although not normally enabled, most computers have a setting available allowing these connections to happen automatically without notifying you (the user). This setting should not be enabled except in temporary situations. Here's how:

   a. To verify whether automatic Wi-Fi connections are allowed, open Control Panel.
   b. Click the "Network Connections" option if it exists (otherwise first click "Network and Internet Connections" and then click "Network Connections.")
   c. Right-click "Wireless Network Connection" and choose "Properties."
   d. Click the "Wireless Networks" tab on the Properties page.
   e. Click the "Advanced" button.
   f. Find the "Automatically connect to non-preferred networks" setting. If checked, this setting is enabled, otherwise it is disabled.

7. **Assign Static IP Addresses to Devices -** Most home and small business networks use dynamic IP addresses because DHCP technology is easy to set up and use. Unfortunately, this convenience works to the advantage of network attackers, who can then obtain valid IP addresses from your network's DHCP pool. To be more secure, you may want to turn off DHCP on the router, set a fixed IP address range instead, then configure each connected device to match. Use a private IP address range (like 12.12.12.x) to prevent computers from being directly reached from the Internet. The specific procedures to follow will vary on the devices you are using, therefore you should refer to the user manual or web for detailed instructions for each device you have on your network.

8. **Enable Firewalls On Each Computer and the Router –** Wireless routers contain built-in firewall capability, but the option also exists to disable them. Ensure that your router's firewall is turned on. For extra protection, consider installing and running personal firewall software on each computer connected to the router. To do this simply log into your wireless router device, navigate to the Firewall menu, and click the Enable button as shown below.

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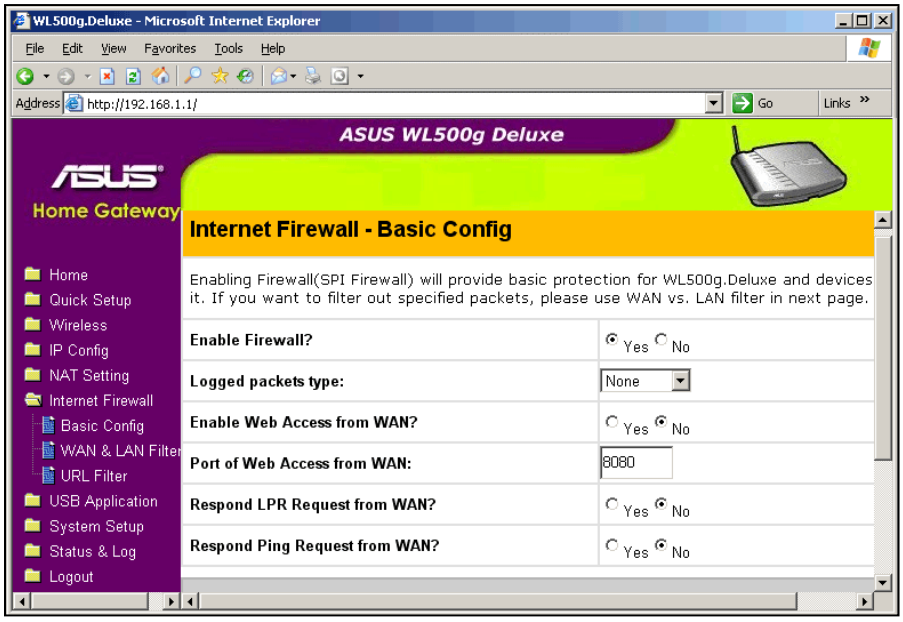
WL500g.Deluxe - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Address http://192.168.1.1/
Go
Links
ASUS WL500g Deluxe
Home Gateway
Internet Firewall - Basic Config
Enabling Firewall(SPI Firewall) will provide basic protection for WL500g.Deluxe and devices it. If you want to filter out specified packets, please use WAN vs. LAN filter in next page.
Home
Quick Setup
Wireless
IP Config
NAT Setting
Internet Firewall
Basic Config
WAN & LAN Filter
URL Filter
USB Application
System Setup
Status & Log
Logout
Enable Firewall? Yes No
Logged packets type: None
Enable Web Access from WAN? Yes No
Port of Web Access from WAN: 8080
Respond LPR Request from WAN? Yes No
Respond Ping Request from WAN? Yes No

9. **Position the Router or Access Point Safely -** Wi-Fi signals normally reach beyond the walls of a home or small office. A small amount of signal leakage outdoors is not a problem, but the further this signal reaches, the easier it is for others to detect and exploit. Wi-Fi signals often reach through neighboring homes and into streets, for example. When installing a wireless home network, the position of the access point or router determines its reach. Try to position these devices near the center of the home rather than near windows to minimize leakage.

10. **Turn Off the Network During Extended Periods of Non-Use -** The ultimate in wireless security measures, shutting down your network will most certainly prevent outside hackers from breaking in! While impractical to turn off and on the devices frequently, at least consider doing so during travel or extended periods offline. Computer disk drives have been known to suffer from power cycle wear-and-tear, but this is a secondary concern for broadband modems and routers.

    If you own a wireless router but are only using it wired (Ethernet) connections, you can also sometimes turn off Wi-Fi on a broadband router without powering down the entire network.

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Speech Recognition
Chapter 8

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Speech Recognition

Speech recognition converts spoken words to text. Speech recognition applications include:

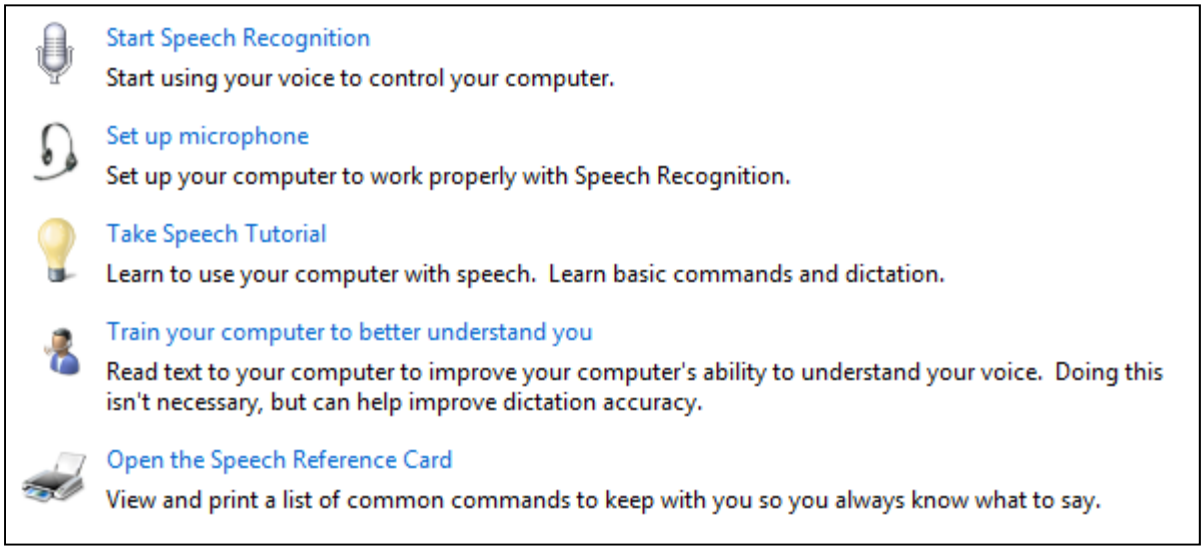
1. Voice dialing (e.g., "Call home"),
2. Call routing (e.g., "I would like to make a collect call"),
3. Simple data entry (e.g., entering a credit card number),
4. Speech-to-text processing (e.g., word processors or emails)

The first speech recognizer appeared in 1952 and consisted of a device for the recognition of single spoken digits [1] Another early device was the IBM Shoebox, exhibited at the 1964 New York World's Fair.

Windows Speech Recognition

Windows Speech Recognition is a speech recognition application included in Windows Vista and more recently, Windows 7. Windows Speech Recognition allows the user to control the computer by giving specific voice commands. The program can also be used for the dictation of text so that the user can control their Vista or Windows 7 computer.

Windows Speech Recognition relies on Microsoft SAPI version 5.3 (included in Windows Vista) to function. The application also utilizes Microsoft Speech Recognizer 8.0 for Windows as its speech profile engine.


Start Speech Recognition
Start using your voice to control your computer.
Set up microphone
Set up your computer to work properly with Speech Recognition.
Take Speech Tutorial
Learn to use your computer with speech. Learn basic commands and dictation.
Train your computer to better understand you
Read text to your computer to improve your computer's ability to understand your voice. Doing this isn't necessary, but can help improve dictation accuracy.
Open the Speech Reference Card
View and print a list of common commands to keep with you so you always know what to say.

To use Speech Recognition, the first thing you need to do is set it up on your computer. To learn how to do that, see Set up Speech Recognition. When you're ready to use Speech Recognition, you need to speak in simple, short commands. The tables below include some of the more commonly used commands.

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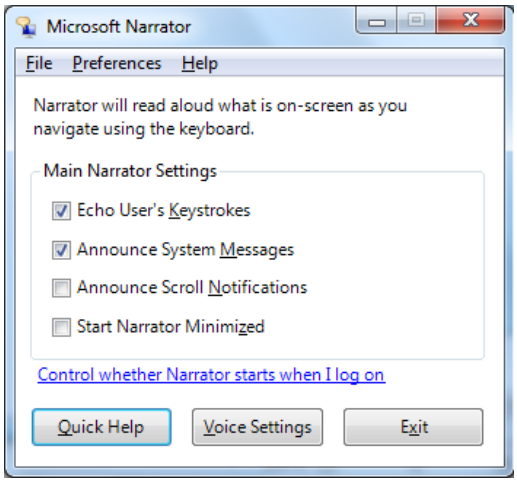
Microsoft Narrator Windows 7



Narrator is a light-duty screen reader utility included in Microsoft Windows. Narrator reads dialog boxes and window controls in a number of the more basic applications for Windows.

While Microsoft recommends that the visually impaired purchase a full-function screen reader for general computer use, Narrator is a significant piece of software for a number of reasons. Narrator is included with every copy of Microsoft Windows, providing a measure of access to Windows without the need to install additional software as long as the computer in use includes a sound card and speakers or headphones.

Narrator can assist a blind person in installing a full-function screen reader, assisting the user until his/her screen reader of choice is up and running. As well, because Narrator is a lightweight screen reader that requires minimal "hooks" into the operating system, Narrator can provide speech when a full-function screen reader might be unable to do so such as during the process of updating hardware drivers.

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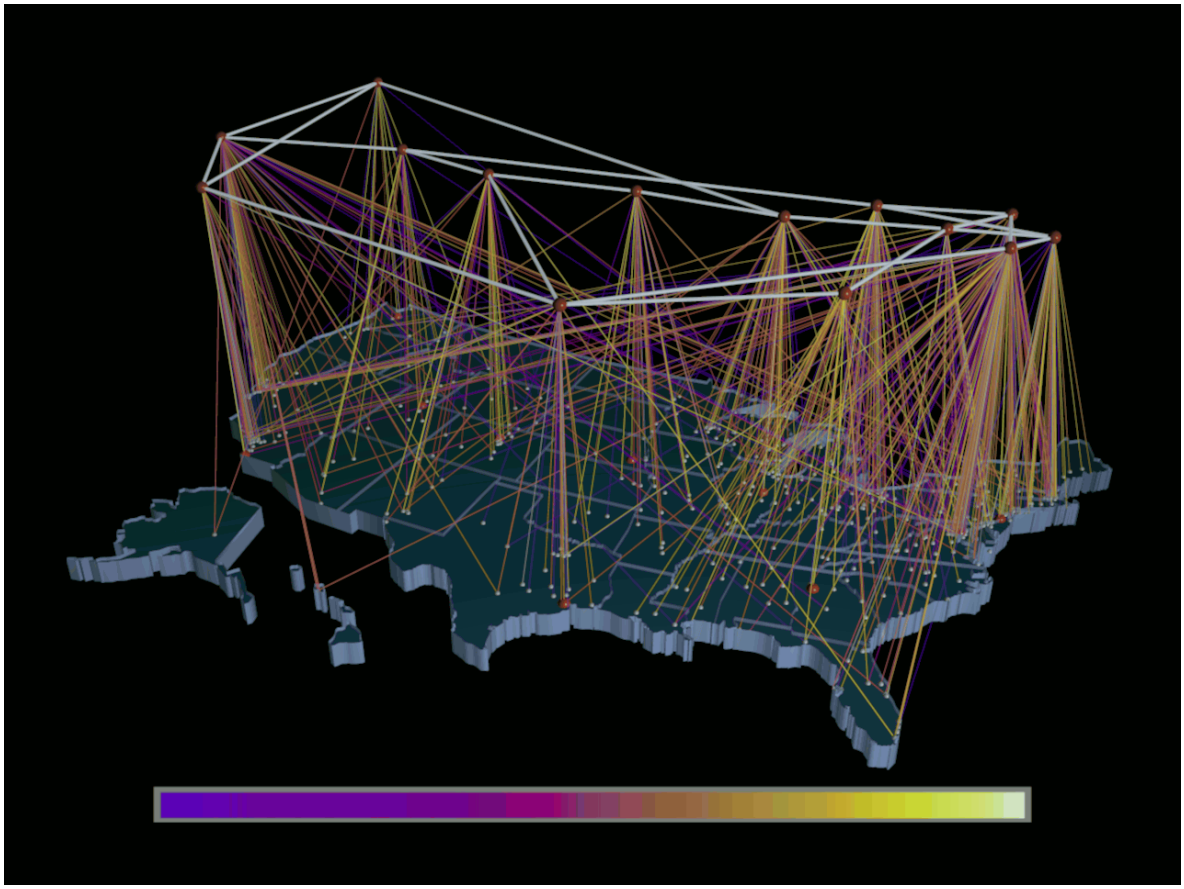
Internet



CHAPTER 9

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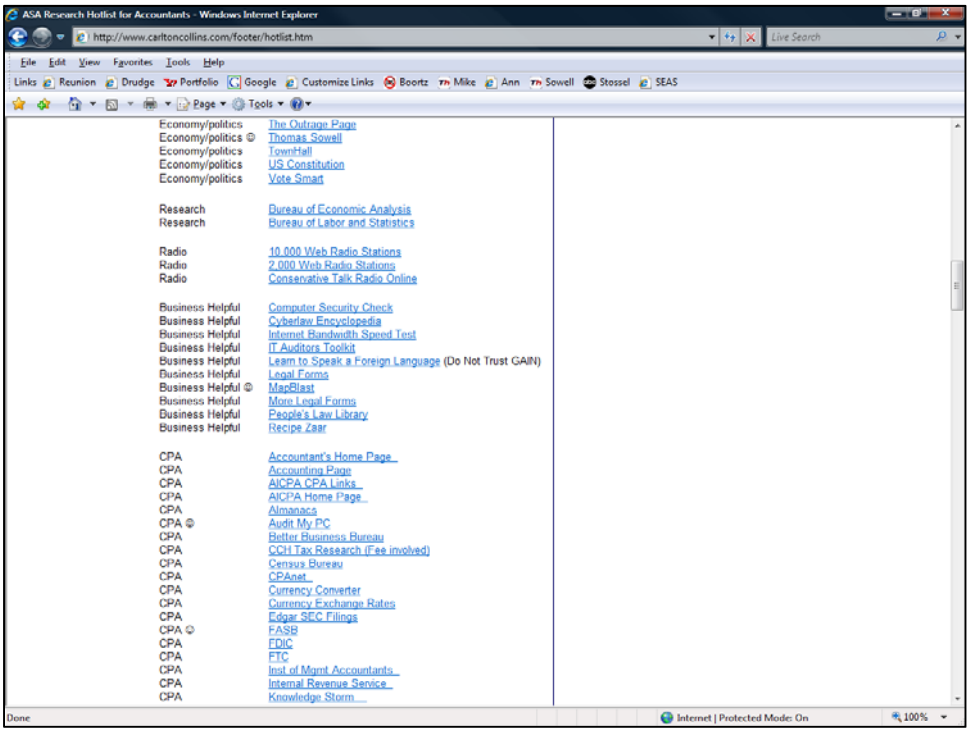
Selected Websites


ASA Research Hotlist for Accountants - Windows Internet Explorer
http://www.carltoncollins.com/footer/hotlist.htm
Economy/politics The Outrage Page
Economy/politics Thomas Sowell
Economy/politics TownHall
Economy/politics US Constitution
Economy/politics Vote Smart
Research Bureau of Economic Analysis
Research Bureau of Labor and Statistics
Radio 10,000 Web Radio Stations
Radio 2,000 Web Radio Stations
Radio Conservative Talk Radio Online
Business Helpful Computer Security Check
Business Helpful Cyberlaw Encyclopedia
Business Helpful Internet Bandwidth Speed Test
Business Helpful IT Auditors Toolkit
Business Helpful Learn to Speak a Foreign Language (Do Not Trust GAIN)
Business Helpful Legal Forms
Business Helpful MapBlast
Business Helpful More Legal Forms
Business Helpful People's Law Library
Business Helpful Recipe Zaar
CPA Accountant's Home Page
CPA Accounting Page
CPA AICPA CPA Links
CPA AICPA Home Page
CPA Almanacs
CPA Audit My PC
CPA Better Business Bureau
CPA CCH Tax Research (Fee involved)
CPA Census Bureau
CPA CPAnet
CPA Currency Converter
CPA Currency Exchange Rates
CPA Edgar SEC Filings
CPA FASB
CPA FDIC
CPA FTC
CPA Inst of Mgmt Accountants
CPA Internal Revenue Service
CPA Knowledge Storm
Done
Internet | Protected Mode: On
100%

See www.carltoncollins.com/

Effective Web Sites

Get Found! - The first problem to overcome is being found on the Internet. To play this game properly, you need to understand exactly how search engines index your web pages and rate them. The specific algorithms used to rank the web pages found in a search vary from one search engine to another, and even vary within the same search engine over time. However in general, if all of your search words are contained in the title of the found web site, that site is generally ranked extremely high. If only a portion of your search words are contained in the title, then the resulting rank is a little lower. If your search words are contained only in the keyword list, then the resulting ranking is still a little lower. If the search words are contained only in the body of the home page, then the resulting ranking is still lower. If the search words are contained in sub pages (this applies to some, but not all search engines), then the resulting rank is lower still. In the event that search words are contained in the title, keyword list, home page and sub pages, an algorithm is used to calculate the resulting rank based on some allocation method.

In the example below, a user has used the Google engine to search for “International Tax Consulting” which resulted in over 9,540,000 hits. The first non sponsored link is BDO Seidman.

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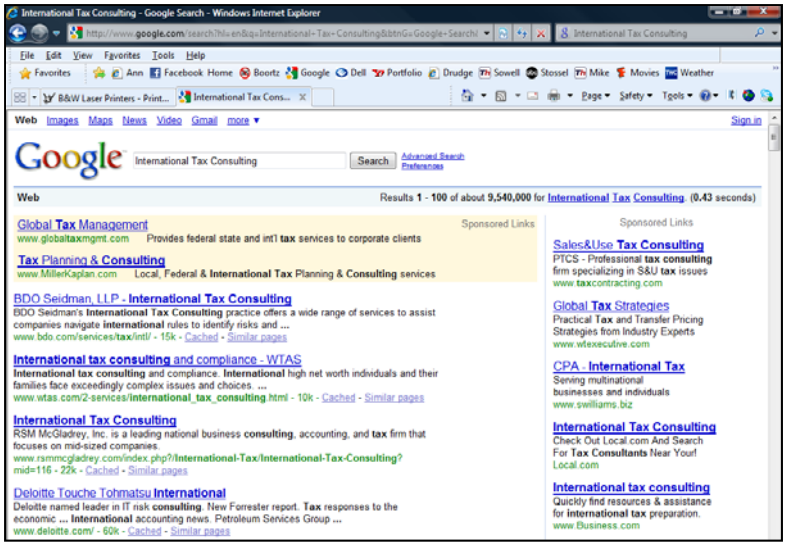
International Tax Consulting - Google Search - Windows Internet Explorer
Google
International Tax Consulting
Search
Web
Results 1 - 100 of about 9,540,000 for International Tax Consulting. (0.43 seconds)
Global Tax Management
www.globaltaxmgmt.com Provides federal state and int'l tax services to corporate clients
Tax Planning & Consulting
www.MillerKaplan.com Local, Federal & International Tax Planning & Consulting services
BDO Seidman, LLP - International Tax Consulting
BDO Seidman's International Tax Consulting practice offers a wide range of services to assist companies navigate international rules to identify risks and ...
www.bdo.com/services/tax/intl/ - 15k - Cached - Similar pages
International tax consulting and compliance - WTAS
International tax consulting and compliance. International high net worth individuals and their families face exceedingly complex issues and choices. ...
www.wtas.com/2-services/international_tax_consulting.html - 10k - Cached - Similar pages
International Tax Consulting
RSM McGladrey, Inc. is a leading national business consulting, accounting, and tax firm that focuses on mid-sized companies.
www.rsmmcgladrey.com/index.php?/International-Tax/International-Tax-Consulting?mid=116 - 22k - Cached - Similar pages
Deloitte Touche Tohmatsu International
Deloitte named leader in IT risk consulting. New Forrester report. Tax responses to the economic ... International accounting news. Petroleum Services Group ...
www.deloitte.com/ - 60k - Cached - Similar pages
Sponsored Links
Sponsored Links
Sales&Use Tax Consulting
PTCS - Professional tax consulting firm specializing in S&U tax issues
www.taxcontracting.com
Global Tax Strategies
Practical Tax and Transfer Pricing Strategies from Industry Experts
www.wtexecutive.com
CPA - International Tax
Serving multinational businesses and individuals
www.swilliams.biz
International Tax Consulting
Check Out Local.com And Search For Tax Consultants Near You!
Local.com
International tax consulting
Quickly find resources & assistance for international tax preparation.
www.Business.com

Of all 9 million+ hits, only three of the web pages listed use the title "International Tax Consulting" in their titles – that's why these three were on top. The result is that if you were to create a web page with this title, chances are good that your web page would be returned to the top of the hit list every time someone searched the Google for a company that offers international tax consulting services.

What we can learn from this observation is two things. First, you need create a web page with precisely the right title and keywords in order to have your best chances of being sorted among the top web sites. Unless your company is one-dimensional, there is no way that you can do this with just one web site. Therefore, to be effective, you may need to create a web site for every service you offer. This concept is discussed further below. The second thing we learn is that it may be beneficial to first test your title against the various Internet search engines before you finalize it. You can usually tell by the resulting rankings of the top hits whether your intended title will sort higher on the list.

Get Chosen - Just because you made it to the top of a hit list from a search engine does not mean the user is going to click on your site. You need to make sure your web page summary is well written and to the point. The reader will most likely continue to scroll down the hit list until they find a hit that is most relevant to the search, based on the brief description. Some search engines require the user to provide a summary at the time the URL is submitted to the search engine while others simply use the first few lines of text in the home page as the summary. Either way, you want your summary read as if it is right on point with the users needs. As mentioned above, it is impossible to accomplish this with just one web page. To be effective, you must create a specific web page for every service or product (group) your company offers. The good news is that it costs very little extra in terms of hard dollars to create 50 web pages compared to just one web page. Only time and effort is involved.

Don't Chase the Prospect Away - Let us assume that your web page has ranked high in a search list and the user has clicked on your link. You can inadvertently chase them away if you make them wait too long for the web page. Common mistakes are locating your web page on a slow web server (such as those provided by America On-Line); adding large graphic images that take too long to load, adding background music that slows down the loading process, and making

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the web page difficult to read. Your web page should get right to the point without a lot of hype. Often a short introductory summary followed by a well designed menu of links is the best way to pull someone into your page. The information should not be buried too deep in the web site – if a user feels that they are on a tiger hunt for the information they are seeking, they may leave your web site altogether. Other mistakes include fonts that are too small, fonts that are too large, backgrounds that make it tough to read the text, and formatting that does not work well with a wide variety of browsers.

Don't Hide Your Company Info - Some web pages make it virtually impossible to find the company name, address, telephone and e-mail information. Our advice is to add this information to the bottom of every web page you create. With this approach, the moment the user decides that they would like to contact you, your information will be close at hand.

Content, Content, Content - Sometimes it pays to give away the farm in order for the cows to come running. If your web site provides only sales information and no answers to common questions, no insights, no examples, and no hints, tips or war stories, then it will not be very effective. A person searching for an international tax consultant would spend a great deal of time on your page if it contained links to the following:

> *Click here for the "Top Ten International Tax Planning Mistakes" corporations make.*
>
> *Click here for four cases studies featuring tax planning strategies for a small, medium, large and Fortune 500 companies.*
>
> *Click here to read about several fraudulent tax strategies that some consultants employ that could land you in jail.*
>
> *Click here to read about current bills in congress which could affect your International tax planning strategy*
>
> *Click here for more good links to International Tax Planning Information on the Web*

Certainly an interested party would spend time reading and printing this material – another good reason to have your name and address on every page. The idea is to provide such a good site for relevant information that the user bookmarks your site so they can easily come back to it. After all, how many times has a person found a good site, and then later was unable to find that site again.

Keep your Web Site Current - People can tell when a web site is out of date. For the best results, add information weekly (or even daily) to your web site.

Deep Information - Your web site can contain almost an infinite amount of information for almost no additional cost. For this reason, you should supply the user with as much "well organized" information as possible. For example, consider posting a 5-page biography for each officer or Partner in your organization. Consider adding pictures of all employees to your web

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site in an effort to help the user associate a face with your company. Add a complete history of the company, information on every product, and information on all of your services. Reference letters can be a great addition as users can view those letters without necessarily bothering the person who wrote you the reference.

Include Prices - While some people may disagree, we think it is a good idea to clearly state your fees and prices for products and services. People on the web are often shopping around for the best price available. With no price to go on, they may not give your site further consideration. Some companies report to have even received e-mails complaining that because no pricing is included, the sender has elected not to do business with that company. Because web users use the web 24 hours a day, it may be unreasonable to expect them to be able to call easily to obtain prices. On the other hand, it may be dangerous to allow your competitors to see your prices.

Multiple Web Pages - Perhaps the most important step you should take is to develop multiple web sites to represent each product or service you sell. For example, a given CPA firm might have a web site devoted exclusively to individual tax preparation, another for Pension and Profit Sharing, another for corporate tax, write-up services, systems work, etc. This will allow you to design a web site that will come across as right on point for the user searching for your particular service or product.

Web Site Mistakes

Over the past seven years, many companies have erected web sites and web stores only to fail miserably. Unfortunately, a large percentage of the companies behind these failed efforts have concluded that there must be little or no market for e-commerce web stores. I believe that they are wrong - dead wrong. I believe that their failures can be chalked up to a multitude of mistakes, missteps, and misconceptions regarding web stores. This article discusses some of the most common site blunders.

Poor Web Design

1. Too Much Clicking **-** I am amazed by how poorly some web sites are designed. In many cases users must click five, six, or even eight clicks deep into the web site to find what they are looking for. My rule is to build web sites in which the entire contents of the web site are only one click away from the home page - unless you have hundreds of pages on a given topic and then I will allow two clicks deep, but no more.

2. Hidden Contact Info - Contact information should be displayed on every page in the web site. You never know when that reader will want to print the page, forward the page via e-mail or pick up the phone and call.

3. No Pictures - All items offered for sale should include a picture, if not multiple pictures. People like to touch and feel stuff before they buy, but a web store does not offer this capability. Pictures and movies offer the next best thing. For example, we've all seen the boom box stereo system promoted on television for just $9.95. It looks great on

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television but when it arrives at your door you discover that it is only 3.5 inches high. Most people just want to confirm what they are ordering. A picture helps tremendously. Multiple pictures, diagrams, schematics, blueprints, dimensions, and VRML's all help the shopper understand the item before they purchase.

4. Weak Descriptions - Web stores should provide detailed descriptions of each product. You would think that this would be obvious, but evidently it is not. Some web sites do not even attempt to describe their products or provide a picture. You have to wonder what they are thinking? Hey, when there is no printing or publishing cost, why not offer a longer description?

5. No Prices - Most importantly, web stores should always provide pricing information. When I encounter a web store without prices - I leave immediately - so do you. Often we leave because we usually shop during non-business hours and; therefore, the web store's instructions to "call for a price quote" at 11:00pm doesn't cut it. In most cases we conclude that because there are no prices listed, they must be ***high*** prices - or else why wouldn't they list them - right? In any event, I for one am not willing to go through the extra effort to determine the price – it is far easier to just move on to the next click.

6. No Competitive Information - Most web sites do not include detailed lists of competitive products. What a mistake. You have an interested shopper reading your web site, but because you don't inform that shopper about all of their alternatives, and the pros and cons of those alternatives - you force them to go elsewhere on the web to find the answers they seek. To do this, they must leave your web site and visit your competitor's web site. Now they have them - and you don't. People want to be informed shoppers. If all you sell on your web store is a toaster, that's fine. But you should consider providing the shopper with a list of every toaster available - along with their prices, descriptions, and pros and cons. By doing this, you've squelched the need for the shopper to visit any further web sites. They now have all of the information they need to make their decision, and they are now on your web site (a web site in which you control the content) - doesn't this sound like a good thing? Savvy shoppers will shop around if necessary, but if you provide all of the information they need, you will attract more shoppers, and generate more sales. Yeah, I know - creating deep content is tough. But it's easier for you to dig up this information than your customers. Do them the favor of providing them with the information they truly need to make the decision and close the deal – you won't be sorry.

7. Can't Get Found- Another common mistake web stores make is they can't get found. You may have a good web site, but nobody can find you. For example, search for tennis racquets and you will find more than 166,000 results. What good is it to be number 457 on this list, not to mention being number 45,757? It's useless. To yield top results, your customers must be able to find you. In my opinion, here are the common mistakes web stores make which prevent them from being found.

8. Lack of Understanding How Search Engines Work - Search tools like Google and Wisenut visit billions of web pages and index every word on each web page, including the file name, title, and embedded keywords. When readers use these search engines to search

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for say "toasters", the search engines quickly find every web page that remotely mentions the word "toasters", and then scores each web page on its relevance to the word "toasters". A web page that contained the word "toasters" in its key word list, its title, and in the body of the web page, would score higher, and therefore would be ranked higher than another web page that simply mentioned the words "toasters" in the body of the page. Based on what I've seen, it appears that many web stores don't understand this simple concept.

a. Further, both Google and Wisenut use algorithms that will rate your web page more highly when other web sites link to you using the search phrase. The only real way to get other web sites to link to your web site is to offer a truly stellar web site. If for example you published the definitive toaster web site, other toaster enthusiasts would link to your site, and you would fair far better in Google and Wisenut searches.

9. Lack of Keywords - To rank high, you must add keywords to your web store. Doing so is very easy, here is an example of the line of html code you add to your web page:

a.

<meta name="keywords" content="tennis, tennis elbow, racket, racquet>

b.

Adding this line of code will not ensure that you rank high, but omitting it will almost always assure that you don't. If you are an astute individual, you may have noticed a slight problem here. If a web store sells hundreds of items, wouldn't they need hundreds or even thousands of key words in their web page? The answer is yes, they would. Unfortunately, many top search engines actually penalize web pages with a lower score for excessive key word use. *(To learn how to mitigate this problem, please refer to my article entitled Web Impressions.)*

10. Improper Page Title - Most search engines award "brownie points" to your web page when the search term is part of the page title. For example, if the person is searching for "toasters", then **Billy Bob's Toaster Museum** page will receive more "brownie points" than the **Wal-Mart** web site. Herein lies a fundamental problem with large web sites that offer thousands of products - they can't include all of the product names in their keywords and page titles. In this case, the advantage goes to the little guy. Like keywords, the title of a page is embedded into the page's programming code via a command line as follows:

<TITLE>Accounting Software: []</TITLE>

11. Failure to Submit - Once you've built your web site and included all of the key parameters, the next step is to visit each search engine and submit your web pages. The process is fairly easy, but submitting to multiple search engines takes time. There are services out there that will submit your web pages for you for a fee. Personally, I find that that you can simply submit your web page on your own to the top ten or twelve search engines and obtain good results. Here is a link to my list of search engine submission pages.

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12. Failure to Submit All Pages - Some companies simply submit their home page to the popular search engines, and fail to submit all of their relevant sub pages.

13. Lack of Good, Deep Content - A lack of good, deep content can hurt you plenty. The top search engines usually award brownie points to those web sites that are frequently linked to by other web sites. If your web site has little or no content, then others will not link to you. If others do not link to you, you won't score as high on a typical search. The only real way to get others to link to your web site, is to provide good content that others will find useful. Few people will link to a "***cyber sales pitch***".

Conclusion

As a general rule, I buy everything I purchase over the Internet – unless I plan to eat it right away. Why do I do this? Because I like to be a more informed shopper and I like to save 20 to 25% on everything I purchase. (After all, CPA stands for Cheapest Price Available). Therefore if you want my business, you'd better have a good web presence – else you will never sell a single product or service to me (except for maybe an occasional ice cream cone). I am not alone. Millions of others also take to the web to find products, services, and rock bottom prices. Call us savvy or call us tight wads. Either way our group is growing and there will be more web shoppers in the future, not fewer.

Go Daddy

As a good example, Go Daddy will host your domain name and provide a web site for just $3.95 per month. Here is how it works:

1. Visit the Go Daddy Web Site and purchase a domain name for $2.00 $10.00.

2. Next subscribe to the Go Daddy web hosting service that matches your requirements.

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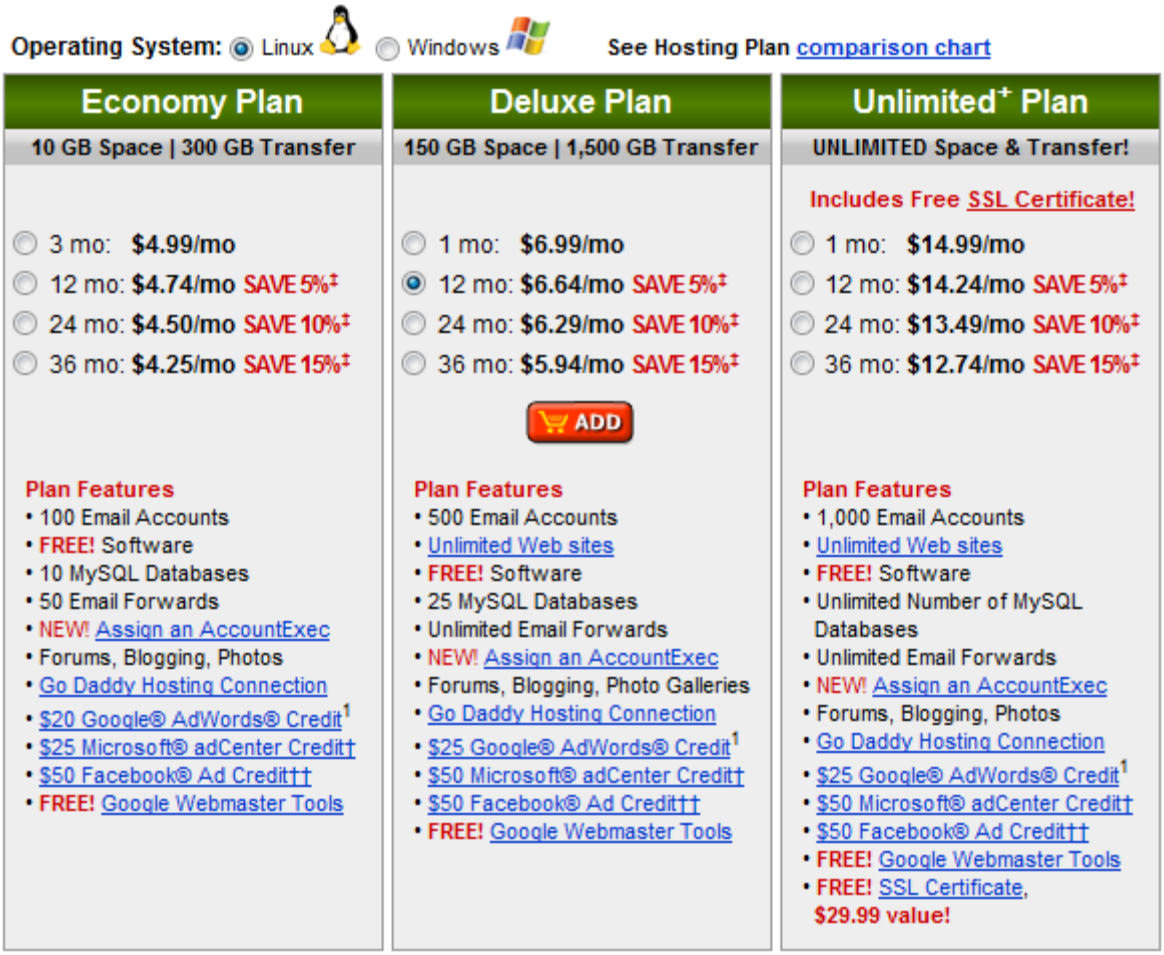
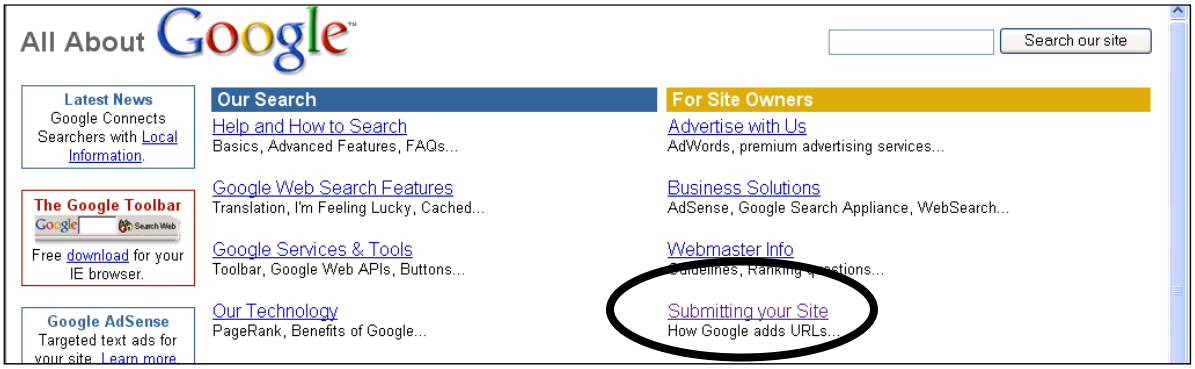

Operating System: Linux Windows
See Hosting Plan comparison chart
Economy Plan
10 GB Space | 300 GB Transfer
3 mo: $4.99/mo
12 mo: $4.74/mo SAVE 5%‡
24 mo: $4.50/mo SAVE 10%‡
36 mo: $4.25/mo SAVE 15%‡
Plan Features
• 100 Email Accounts
• FREE! Software
• 10 MySQL Databases
• 50 Email Forwards
• NEW! Assign an AccountExec
• Forums, Blogging, Photos
• Go Daddy Hosting Connection
• $20 Google® AdWords® Credit[1]
• $25 Microsoft® adCenter Credit††
• $50 Facebook® Ad Credit†††
• FREE! Google Webmaster Tools
Deluxe Plan
150 GB Space | 1,500 GB Transfer
1 mo: $6.99/mo
12 mo: $6.64/mo SAVE 5%‡
24 mo: $6.29/mo SAVE 10%‡
36 mo: $5.94/mo SAVE 15%‡
ADD
Plan Features
• 500 Email Accounts
• Unlimited Web sites
• FREE! Software
• 25 MySQL Databases
• Unlimited Email Forwards
• NEW! Assign an AccountExec
• Forums, Blogging, Photo Galleries
• Go Daddy Hosting Connection
• $25 Google® AdWords® Credit[1]
• $50 Microsoft® adCenter Credit††
• $50 Facebook® Ad Credit†††
• FREE! Google Webmaster Tools
Unlimited+ Plan
UNLIMITED Space & Transfer!
Includes Free SSL Certificate!
1 mo: $14.99/mo
12 mo: $14.24/mo SAVE 5%‡
24 mo: $13.49/mo SAVE 10%‡
36 mo: $12.74/mo SAVE 15%‡
Plan Features
• 1,000 Email Accounts
• Unlimited Web sites
• FREE! Software
• Unlimited Number of MySQL Databases
• Unlimited Email Forwards
• NEW! Assign an AccountExec
• Forums, Blogging, Photos
• Go Daddy Hosting Connection
• $25 Google® AdWords® Credit[1]
• $50 Microsoft® adCenter Credit††
• $50 Facebook® Ad Credit†††
• FREE! Google Webmaster Tools
• FREE! SSL Certificate, $29.99 value!

3. Next, start posting your content to the web site. You can use Dreamweaver, Expression Web, Cold Fusion, Front Page, Word, or even Excel to accomplish this task.

Submitting Your Home Page to Web Search Engines

Once your web page is up and running, you want the world to be able to find it. You perform this step by "submitting" your URL to the various popular search engines. As an example, to update the Google search engine, go to the Google Web Page and click the "Submit" button as shown in the screen capture below:



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This button will take you to a form which will allow you to list up to ten URLs. Within a few hours, Google will “crawl” over to your web page and index the key words off of your web page. Thereafter, users of the Internet may (or may not) find your web page by keying in search criteria that match your key words. The reason that they may not find you is simply because of volume. Assume for example that one of your key words is “medicine”. On March 25, 2004, a search for the key word “medicine” resulted in 39,500,000 web pages which contained that word. Whether or not your web page appears at the top of the list depends on luck.

Of course, most users would refine their search. For example, let us assume that a user were to search for the words medicine and aspirin. This search resulted in only 500,000 web pages which contains both of those words. Therefore, if these two words were part of your web page, you would have a higher probability that someone will find your web page.

Characteristics of a Successful Web Page

1. No Invisible Webs. It is difficult sometimes to find web pages in the haystack of the Internet. To keep the site from being invisible, it must be registered with all of the online search engines like Lycos, WebCrawler, Alta Vista, InfoSeek, etc. and with the catalog listings such as EINet Galaxy, Yahoo, the Commercial Sites Index, etc. In addition, the registrations should be kept up to date with new categories and new sites.
2. No Dead Webs. Some Web pages have a "ghost-town" feel about them because it seems as if no one has been tending them in a while. On good sites, the content is always fresh -- there are few pages where some new information hasn’t been posted recently.
3. Successful pages are information-rich, so the site offers good content, content, content.
4. Good clear navigation around and through the site is a must. The navigational elements (icons, arrows, etc.) are consistent and moving around on the page and among the pages feels intuitive --- you can see where you are going, and return easily.
5. The site has true value added: services, content, products, resources. It is not just a place to market and sell. Users can get real information and services for free.
6. The site maintainers are responsive -- they answer queries and trouble shoot problem links. You don't get the dreaded: "404, URL not found" messages that mean that the document you are hunting for is not there.
7. The site has organizational and/or institutional support. This means that the site is not set up by guys "out back" where no one else in the organization knows anything about the site. The site has budget and personnel support.
8. The site is capable of gathering information about users through contests, newsletters, surveys, etc. so that the maintainers know who has been visiting the site.
9. The Web site is a marketing channel integrated with other channels such as print-media, TV, radio, for example.
10. The site has a structurally sound and aesthetically pleasing design
11. The site is viewable with a variety of browsers
12. There are text and small image alternatives for large images

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13. Interactivity with people is available
14. The site is sensible vs "hot" -- graphics, design and colors are in synch with the corporate image
15. The site has consistent imagery and content from page to page

Web Development Tips:

1. Test your pages on multiple platforms before you release them to the world. What may look wonderful on the Internet Explorer or Netscape browser, may look horrible on an AOL, Macintosh, or UNIX NCSA Xmosaic browser.
2. Your server logs are a gold mine of information. For example, you can see the percentage of users that are loading the pages but not the images in the pages. You can also see which pages have never or rarely been accessed.
3. Don't wait for people to tell you that there are problems. Most people who find a problem with your web site go away without saying a thing. Check your own page regularly.
4. Don't use long titles (such as ones that wrap around) --Remember that the title goes into the hotlist, where display space is limited.
5. Always use text with images that are links. It can be frustrating to encounter a home page that is a series of images without a single word on the entire page.
6. Have each topic represented by a single web page. However, if you have a large number of topics, maintaining and linking them can be a daunting task. Consider combining smaller, related topics onto a single page instead. But don't go overboard and put everything on one page; your reader still has to download your document over the Internet. It can be better to have several medium sized pages (say, the size of two to ten pages in your word processor) than to have one monolithic page or hundreds of little tiny pages.
7. While some individuals may have a dozen different image viewers link to their browser, most don't. Your pictures are more likely to be viewed if you make them in, or convert them to, one of the popular image types such as GIF or JPG.

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Buying on the Web

For the past seven years, I have purchased almost everything over the internet. I simply will not buy furniture, a bike, a car, a camera, a boat, a house, office supplies, airline tickets, toys, clothes, computers, books, without first shopping it over the internet. The web saves me time, it makes me a more informed consumer, and it almost always saves me 20% to 25% of my purchase price. Here are some of my personal examples, just to share a few:

Item	Best Retail Price	Web Price I Paid	Savings	Savings %
Hooker Bedroom Furniture	$ 6,000	$ 4,200	$ 1,800	30%
Electric Dog Fence	$ 250	$ 180	$ 70	28%
Hotel Rooms in Paris, France	$ 1,495	$ 995	$ 500	33%
Bass Fishing Boat	$ 6,200	$ 4,500	$ 1,700	27%
Sony Camcorder	$ 1,600	$ 1,200	$ 400	25%
Kodak Digital Camera	$ 869	$ 600	$ 269	31%
Delta Airline Ticket to Seattle	$ 1,800	$ 429	$ 1,371	76%
Trumpet	$ 600	$ 360	$ 240	40%
Fireplace Screen	$ 369	$ 140	$ 229	62%
Bicycle Third Wheel	$ 229	$ 129	$ 100	44%
Lego Mindstorm	$ 199	$ 150	$ 49	25%
Tennis Racquet	$ 210	$ 140	$ 70	33%
Childs Tennis Racquet	$ 100	$ 70	$ 30	30%
Baseball Bat	$ 229	$ 169	$ 60	26%
Compaq 24 inch Monitor	$ 1,800	$ 950	$ 850	47%
Totals	$ 21,950	$ 14,212	$ 7,738	35%

As you can see by the above few examples, the cost savings can be impressive. These prices do not reflect savings for sales taxes, which usually more than covers shipping costs. In 1999, I calculated that I saved more than $18,000 by shopping on the web - most of these savings were related to travel. My wife and I also purchase numerous books, gifts, supplies, and other items over the web. Not only do I save money, but this also saves me time. A trip to the store can eat 1 to 3 hours of your time here in Atlanta, but a similar trip to the web takes only 10 to 15 minutes. Other benefits of web shopping include:

- Not risking a head on collision traveling to the store
- Not polluting the atmosphere with my automobile's combustible engine
- No wear and tear on my automobile, no rubber worn off my tires
- Not being mugged in the parking lot once there
- Not succumbing to impulse purchasing once I am in the store

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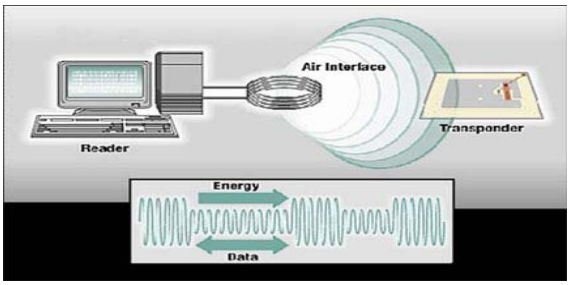
I told this story in December 2001 during a conference in a Salt Lake City, Utah and made my usual boastful claim that I save 20% to 25% on almost everything I purchase over the Internet. Before I could go much further, a participant from the audience called me on it. He pretty much insinuated that I was lying, or at least exaggerating. He challenged me in front of the entire audience by stating that he had just purchased a German Martindale bridle for $99 and that he had searched many retail outlets for months before finding this great price. He challenged me to do better. The gauntlet had been thrown down. I knew that I had to respond or my credibility would have been shot. I started using the search tools to locate the item in question. It took me about 4 minutes, but I was able to find the exact German Martindale bridle for just $59.00. Needless to say, my skeptical friend was amazed and he hung around after the presentation to tell me.

The RFIDs are Coming!

What is RFID? – In layman terms, an RFID is a barcode that "barks" – its signal can be read as far away as 30 feet. RFID stands for Radio Frequency Identification, a technology with its roots in World War II. Today, Ultra-High Frequency (UHF) RFID is emerging as a premier technology for automating the identification and tracking of commodities and collecting valuable information on their whereabouts, contents, physical state and more. Organizations in retail, defense, transportation, healthcare and other industries are increasingly employing RFID technology to bring new efficiencies to supply chains, track assets, ensure product quality and consumer safety, protect the integrity of their brands, promote security and more.

How RFID Works - A RFID system has several components including chips, tags, readers and antennas. In its simplest form, a small silicon chip is attached to a small flexible antenna to create a tag. The chip is used to record and store information. When a tag is to be read, the reader (which also uses an antenna) sends it a radio signal. The tag absorbs some of the RF energy from the reader signal and reflects it back as a return signal delivering information from the tag's memory.



Radio Frequency Identification (**RFID**) provides an automatic identification method, relying on storing and remotely retrieving data using devices called **RFID tags** or transponders. An **RFID tag** is a small object that can be attached to or incorporated into a product, animal, or person. **RFID tags** contain silicon chips and antennas to enable them to receive and respond to radio-frequency queries from an **RFID** transceiver. Passive **RFID tags** require no internal power source, whereas active **RFID tags** require a power source. Below are examples of RFID Tags:

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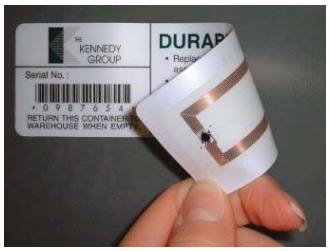

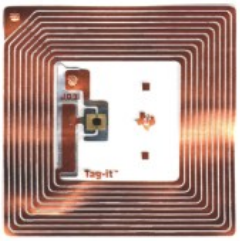

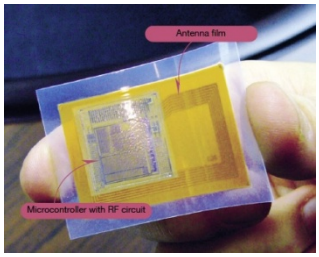

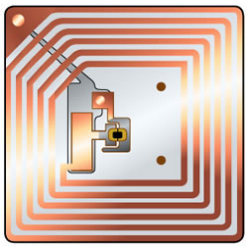

RFID Range - UHF RFID systems communicate using frequencies around 900MHz with a maximum read range of 10 meters (approximately 30 feet) under ideal conditions. This makes UHF RFID a promising solution for reading pallets and cartons off of conveyors or in portals from a distance. But this capability does not in any way preclude UHF from near field and near contact applications as UHF systems can be easily tailored to meet lower range requirements. This can be accomplished by reducing power at the reader, reducing the size of the reader antenna, and/or reducing the size of the tag antenna.

RFID Tags - RFID tags are designed and produced in a variety of shapes and sizes, dependent on application requirements. As UHF RFID has a large maximum read range to begin with, using extremely small tags for such applications as near field item level tracking (where tags may reside under bottles caps or behind product labels, for example) is promising. Applications such as pallet or case level tracking of commodities on conveyors or passing through portals, and read from a distance, typically require larger tags.

The picture above right shows about 50 small RFID nano-sized chips in a vial. Isn't it amazing how small and cheap the devices are getting.

RFID Readers - RFID readers are generally composed of a computer and a radio. The computer manages communications with the network, allowing tag data to be communicated to enterprise software applications such as ERP systems. The radio controls communication with the tag, typically using a language dictated by a published protocol such as the EPC Class 1 specification. This particular protocol, one of several in use, is the most common language used by tags in supply chain applications. Presented below are pictures of 3 different styles of RFID readers, each of which is priced between $2,000 to $3,000 as of April 2007.

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Advanced RFID Readers - Advanced readers, such as the new Alien ALR-9800, differ from basic readers in three dimensions: remote management, reader coordination and optimal read range. First, advanced readers provide for remote management on the company network. Second, advanced readers have sophisticated mechanisms to provide for the coordination of readers when many units are used in the same environment. These mechanisms help avoid interference and provide for coordinated operations. Finally, more advanced readers have advanced receiver designs that provide for the best possible read range.

RFID Printers - RFID printers simultaneously encodes data on to RFID tags while printing a graphical image on the surrounding label. RFID printers typically support many standards involving RFID including the ISO 15693 standard at 13.56 MHz as well as several EPCglobal and ISO standards for Ultra High Frequency (UHF) applications. Most RFID printers are capable of performing multiple procedures, including writing data to RFID tags, querying the tags unique identification number, and auto-detecting the tag to ensure no valuable RFID smart labels are wasted. Presented below are three examples of RFID printers.

RFID Antennas – Depending upon the situation, you also need a variety of antennas in order to transmit the UHF energy and capture the RFID information - the greater the distance, the more powerful the antenna. Pictured below are a variety of RFID antennas.

RFID Portal – In an effort to read large containers, it is useful to employ an RFID portal in which a series of antennas blankets a doorway or passage to ensure that all RFIDs passing through are properly read. An example of an RFID Portal is pictured below.

Current RFID Applications

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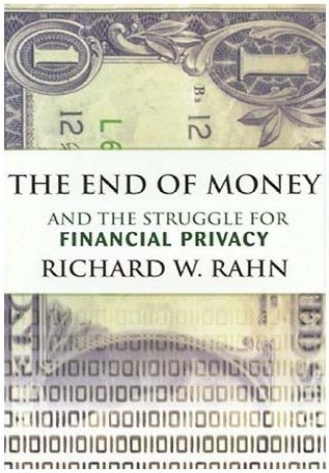
Presented below are a few examples of RFIDs that are being used today. The table includes information about when the RFIDs were first implemented and how they are used.

Implementations of RFID

Company	Item tagged	Type of tag/chip	Read/ write	Year/ stage	Outcome
Harley Davidson	Bins carrying parts of custom motorcycles during assembly	Passive 13.56 MHz	Read/write	1998/ rollout	Automatically displayed manufacturing instructions for employees at each stage of the assembly process
Toyota: Phase 1	Carriers containing car frames as they move through paint stations during production	Passive 13.56 MHz	Read/write	2001/ rollout	Streamlined manufacturing and vehicle tracking; saves on interest charges
TrenStar	Beer kegs as they move through the supply chain	Passive 125-128 MHz	Read/write	2001/ rollout	Improved demand forecasts and increase efficiency; identification of black-market sales and elimination of misdirected shipments
Inter-national Paper	Cores of large paper rolls moving through the warehouse	Passive 915 MHz	Read only	2003/ running	Reduction of lost and misdirected paper rolls
Gap	Denim apparel through the supply chain and onto store shelves	Passive 13.56 MHz	Read/write	2001/ pilot	Improved customer service through better inventory management on shop floor; increased supply chain efficiency and data accuracy
Raxel	Reusable plastic containers for carrying biohazardous waste	Passive 905-928 MHz	Read/write	2002/ imple-mented	Avoid contamination by ensuring proper cleaning, asset visibility
Michelin	Tires	Passive 905-928 MHz	Read/write	2003/ running	Compliance with the TREAD act and recall management
Las Vegas Airport	Airline baggage tags	Passive 902-928 MHz	Read/write	2003/ deploy-ment	Automated rerouting of baggage and increased accuracy (99.5% up from 70%-85% accuracy with bar codes) to ensure that they send each bag back to the right airline
Depart-ment of Defense	Shipping containers	Active 433 MHz	Read/write	1994/ rollout	90% reduction in the number of containers required

To fully appreciate the benefits of RFID enabled credit cards, you should consider reading Economist Richard Rahn's book "The End of Money" which was published in 1999.



In this book Rahn explains how our society has outgrown the need for money, that the use of money is inefficient, that counterfeiting is more rampant than ever, and that the use of differing currencies that fluctuate in value creates havoc world-wide. Rahn explains how digital money will reduce tax rates and simplify tax reporting. For example, the use of digital money would leave a trail of drug dealer activities. While Rahn wrote this book before digital credit cards emerged, in my opinion his 1999 insights are more valid today than ever. (Keep in mind that many people are extremely

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alarmed by this advance in technology because they claim that a huge database of information is being built which can be abused by the government, or others.) A few key points from this book are as follows:

1. Rahn discusses the impact of the Internet (beyond the control of any government), the semiconductor chip (doubling in power about every 18 months), public key encryption (highly secure and becoming ever more difficult to breach), global futures markets (which enable anybody to learn the price of freely-traded currencies and commodities), asset securitization (enabling many assets to provide backing for private money), smart cards (storing money outside electronic communications systems) and the declining cost of communications systems (which makes it cheaper to use private money). He talks about the spread of optical communications and low orbit satellites which enable anybody using a pocket communicator to access the Internet--even when there aren't any wires around.

2. "Private money is on its way," Rahn declares, "and no government is going to be able to stop its arrival or its flow. Concealing one's financial transactions will be easy for those who wish to do so, and government efforts to make private money illegal or taxable will ultimately fail."

3. Rahn also reports there are over 3,000 federal criminal offenses in the US, plus millions of regulations. The Internal Revenue Code runs over 9,000 pages. This explosion of laws and regulations has brought government snooping on a gigantic scale. He makes the argument that digital money will help protect the privacy of citizens.

4. To support his insinuations, Rahn describes how government snoops obtain bank checking-account records, monitor overseas phone calls and otherwise invade privacy. He covers government seizure of the assets of peaceful people. He argues that government gains power to invade privacy in the name of supposedly high-minded objectives like stopping criminals and drug dealers, but the power to invade privacy is always abused.

Car Keys - Smart keys have been around since the end of the last century, but with improvements in RFID and the new kid on the block, NFC, more sophisticated technology is replacing older key technology. In the Toyota Avalon, for example, an on-board sensor recognizes a signal from the smart key, allowing the driver to start the engine by pushing a switch. If he waves the smart key near the trunk, it opens. And, of course, it unlocks the car as the driver approaches. Ditto for the American-produced Corvette and Cadillac XLR.

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RFID Door Locks – A company called SAFLOK® manufactures RFID enabled door locks that help building managers achieve increased access management flexibility, security, and efficiency. These door locks are already used in many multifamily communities, student housing and campuses, commercial buildings, as well as transient and long-term military housing. The locks use wireless RFID (radio frequency identification). Rotation of the inside thumb turn or the inserted RFID key extends or retracts the 1" dead bolt locking or unlocking the door. In the locked position only duplicate resident and authorized service keys can access the lock. Unit locks are programmed with one resident code (change key). Each key made with one resident code can have up to 64 unique identity codes. This configuration is designed to allow access to multiple residents who have the need to access individual unit doors behind the suite door. Presented below is a picture of this product.

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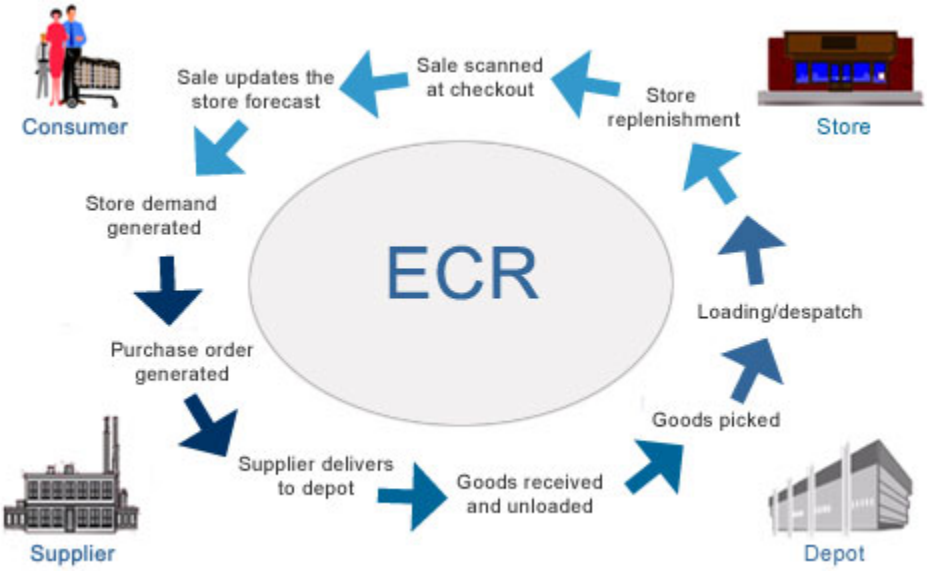
Supply Chain

What is a Supply Chain?

The concept of a supply chain means different things to different people. To many, "supply chain" refers to the delivery and tracking of inventory from beginning to end. For others, it also refers to tracking and delivery of services. Still others think of a supply chain in terms of including the invoicing and payment collection functions. They are all correct for in a society, goods and services are "supplied" to resellers and customers and in return, payments are "supplied" back to the persons providing those goods and services. Yet another interpretation includes information such as the mechanical status of delivery trucks, levels of drink machines, and customer notifications as an integral part of the supply chain. Therefore it could be argued that the term "supply chain automation" refers to the tracking and delivery of all goods, services and payments.



For our purposes, we are mostly concerned about studying a supply chain that refers to the delivery and tracking of goods and inventory, beginning with raw materials, continuing through the various manufacturing and delivery steps, and continuing all the all the way to delivery to the consumer end user. As consumers, we are all part of the supply chain. Each time we walk into a grocery store or retail operation, we are completing the supply chain process of delivering goods from their original source to the ultimate consumer. Each time we place an order over the phone or on a web site, we are playing an integral part of the supply chain process. Each time we inquire as to availability or price, we are an active part of the end of the supply chain cycle.

On the front end of the supply chain, suppliers mine and harvest raw materials to be introduced in the supply chain -sand is used to make glass; iron ore is used to make steel; trees are used to make lumber. These raw products are combined with other raw products and proceed through the supply chain cycle where manufacturers turn these materials into finished goods such as furniture, doors, and cameras. The efficiency of this intricate supply chain process relies heavily on communication and product delivery. This is where supply chain automation comes in.

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In recent years supply chain communication relied on the U. S. mail, the telephone, and the fax machine. Supply chain delivery relied on trains, boats, and trucks. Today many companies still rely on these older communication and delivery methods, even though new communication methods are faster, better and less costly. For example, e-mail, EDI, and XML technologies offer superior communication capabilities because they are instant, virtually error free, and do not require data to be rekeyed. Newer delivery systems such as centralized warehousing and drop shipping are also typically faster, better and less costly. In order to maintain competitiveness, companies should periodically analyze and evaluate new and emerging supply chain methods and adopt those methods that make sense for their organization.

The Pameco Story

To begin our discussion and to help us better understand the importance of implementing and fine tuning a well organized supply chain system, let us first look at an "old school" example of the supply chain. Following is a real life story, and perhaps one of the more ridiculous stories you will encounter concerning supply chain technology. However, it is my personal experience and I think it is worth telling:

In 1994 I built a new house in Atlanta, Georgia and installed a personal fax machine in my basement. Almost immediately I began receiving internal fax orders and other documents from a large national heating and air conditioning company called Pameco. I was very concerned that their important purchase orders, service requests and administrative documents were not reaching the proper recipients. For several years, I made diligent efforts to contact the parties who had faxed me in error to inform them of the problem. I reported the problem to Pameco employees who had sent me the errant faxes and in each case, I then forwarded the errant faxes to their proper destination.

I estimate that these errant Pameco faxes cost me several hundred dollars in long distance charges, not to mention my time, paper and toner. After a while, I grew tired of Pameco's intrusive faxes. They continuously gobbled up my fax paper and the resulting empty fax machine prevented me from receiving my own faxes properly.

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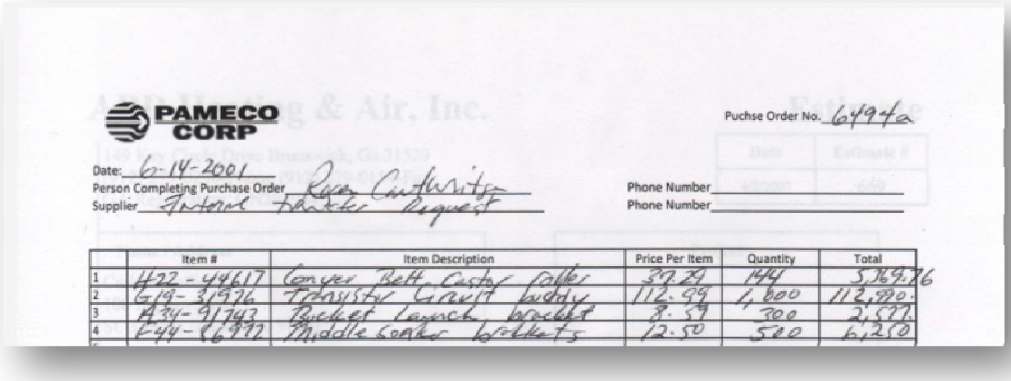
In 1997 I started to try other tactics in an attempt to get Pameco's attention. At times I used WinFax Pro to capture and send their faxes back to them 1,000 times. Sometimes I included a nice message, sometimes my message was not so subtle. On other occasions, I called Pameco employees and read them their social security numbers, their salary levels, and intimate details of their employee reviews. Eventually I began throwing the errant Pameco faxes away. I wonder how long it took Pameco employees to figure out that their faxed orders had not gone through – A day? A week? Never? Who knows?

It's Far Worse than It Sounds

Pameco's supply chain problems are much worse than a few lost orders. Even those orders that went through the Pameco order process as intended were subject to an arcane and inefficient process. You see, Pameco's orders were handwritten. That means that each time a purchase order was generated, a person had to gather some blank Pameco purchase order forms and fill them out by hand. Sometimes these forms were 18 pages long and contained 40 lines per page. Try to imagine a person looking up long part numbers and writing them in by hand. Next imagine them calculating the number of items needed and multiplying the quantity times the price for each individual item and writing in the line total. Imagine this process continuing for 18 pages and then the total of all 18 pages being calculated and penciled in at the bottom. Now try to imagine sending an 18 page fax through a fax machine. How many times have you had to wait on a fax to come through before you could send your fax out? How many times did you have to add more paper so a fax could come through before you could send your fax out? How many times did you need to add new toner so the fax would work properly.



PAMECO CORP

Puchse Order No. 6494a

Date: 6-14-2001
Person Completing Purchase Order Russ Cuthrie
Supplier Internal Transfer Request

Phone Number
Phone Number

	Item #	Item Description	Price Per Item	Quantity	Total
1	H22-44617	Conver Belt Cushy Roller	37.71	144	5,369.76
2	G19-3/976	Conveyor Guard Buddy	112.99	1,000	112,990
3	A34-91743	Bucket Launch Wobbler	3.59	300	2,577
4	L44-16992	Middle Conveyor Wobblers	12.50	500	6,250

Now imagine the recipient who receives the fax. Does the recipient jump on that fax immediately, or does it sit there for a few days before it is acted upon? What about accuracy? Can the recipient read every number on every line item accurately, and if so, do they re-type all of those numbers accurately and flawlessly? Assuming perfection, just imagine the enormous amount of time required to create a handwritten purchase order and then retype that purchase order into another system. You can easily see how this manual process is wrought with inherent keypunching errors, labor intensive effort, and ordering delays.

Finally, in 2000, I talked to a Pameco representative who was able to help identify and resolve the problem. Apparently if you dialed an internal fax number from Pameco's internal list of fax numbers, and you mistakenly matched the prefix on line 4 with the number on line 5 – you got my fax number by mistake. The problem was that Pameco employees had been simply mis-dialing my fax number by mistake for the past 6 years. To solve the problem the Pameco representative inserted a blank line between each fax number and finally, this seemed to take care of the problem – at least for a while. About 1 year later I started receiving Pameco faxes again.
This problem persisted until June 3, 2002 when Pameco announced its filing of Chapter 11 bankruptcy to dissolve the company.

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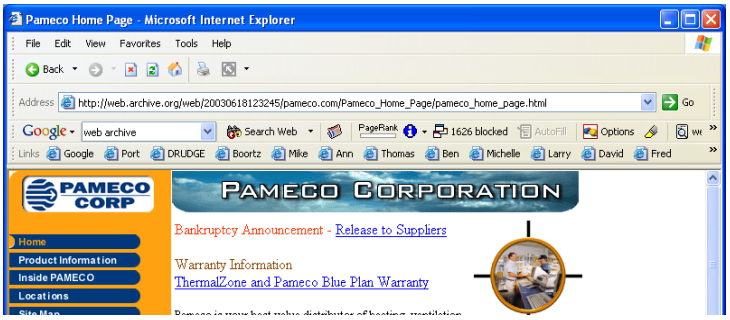

Isn't it obvious why Pameco went bankrupt? I believe that it is all my fault - because I threw Pameco's orders in the trash can on a regular basis for many years – right? Hundreds of thousands of dollars of orders were sent by Pameco employees to my basement fax machine, and I simply threw them away. Years of bringing this problem to Pameco's attention and forwarding their faxes to the correct recipient, and even writing personally to the President of Pameco and talking with their executives did not solve this problem. I would argue that Pameco went out of business because their supply chain was flawed and their management personnel ignored my warnings; were they inept?

Pameco's Methods are Alive and Well

I wish that I could report to you that Pameco was an anomaly - a company that used an irregular method to manage and track goods along the supply chain. Unfortunately, I cannot make this report. Instead I must report to you that as of 2007 the majority of companies still use the same old communication methods that Pameco used for ordering and transferring goods through the supply chain. Millions of companies transact hundreds of millions of transactions each day using the same in-efficient hand written, faxed-in method I just described. It is easy to imagine that many of these companies are suffering from same problems described above – improperly dialed phone numbers, illegible orders, inherent keypunching errors, time delays, and the list goes on. Even those companies who are operating their supply chains manually without losing orders are still suffering from expensive labor and a slower turning inventory ordering process. The fax machine and telephone are still the top tools used for ordering goods, materials, and supplies. In fact, many companies still use typewriters to fill in purchase order forms and other documents prior to sending. Amazing – *but true*.

The Wal-Mart Story

If the Pameco story offers perspective on what not to do, the Wal-Mart story offers a perspective on what we should all do to implement and leverage superior supply chain technology. Over the past twenty-five years, we've seen dramatic improvements in accounting system supply chain technology – so dramatic in fact that those who do it well are able to dominate their competition and drive them out of business. In the 1980's Wal-Mart made an enormous commitment to implement the most effective and efficient accounting software systems known to the retail industry, and as a result Wal-Mart has grown to become the largest retailer in the world while competitors such as Sears, K-Mart, J. C. Penny's and Federated Department stores have struggled to stay profitable and were forced to seek bankruptcy protection. Wal-Mart's heavy emphasis on developing and implementing tight supply chain solutions not only catapulted them to the top of the retail channel – but also into the history books. Consider this example:

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Let us consider the act of purchasing a flashlight at Wal-Mart. Once the cash register reads the flashlight's bar code price tag and the transaction is completed, reportedly within fourteen seconds, the Wal-Mart central warehouse is notified that the Wal-Mart retail store needs a new flashlight for the shelf in order to replenish the purchased item. Further, the manufacturer is also notified that the Wal-Mart central warehouse needs a new flashlight in stock. Even the raw material suppliers are notified that the manufacturer now needs a little more raw materials (plastic housing, switch, light bulb, etc), and so it goes – all the way up the supply chain. *(Sometimes just for fun, I like to let the Wal-Mart cashier ring up an item, then I wait fifteen seconds, then I tell the cashier that I have changed my mind – I no longer want the item. I have no idea what impact this has on Wal-Mart's supply chain, but it gives me a great feeling of power.)*

Wal-Mart's legendary supply chain technology has allowed them to break the three-day barrier that some economists in the eighties felt was largely unbreakable. In other words, Wal-Mart is often able to replenish items on the Wal-Mart shelf in less than three days – not just from the central warehouse to the shelf, but from the manufacturer to the shelf. Armed with a quick and reliable 2-day turn around, Wal-Mart is able to maintain lower levels of inventory and still meet customer demand. These lower inventory levels result in either a reduced floor plan note (with lower carrying costs and lower interest expense) – or a greater diversity of products on the store shelves. *(ie: With faster replenishment, Wal-Mart can get away with carrying just 5 flashlights instead of 10, thereby freeing up more shelf space for those George Foreman hamburger cookers.)*

Additionally, because Wal-Mart is better able to order inventory "on demand", the company is in a better position to meet customer demand. Fads (such as diet pills, energy drinks, American Idol apparel, razor scooters, spinning tire rims, the latest XBOX game, pet rocks, crazy bones, Pokemon cards, hula hoops, silly putty, the slinky, etc.) are tomorrow's obsolete inventory.

Wal-Mart's superior supply chain technology allows the company to adjust inventory levels faster and better avoid carrying an oversupply of "fad" items that might go obsolete overnight. Consider that just twenty years ago, J C Penny's typically ordered goods 90 days ahead of arrival, which made the ordering process mostly guess work when it came to determining if a particular item (such as a polyester leisure suit) would still be in style by the time it hit the shelves. This was such a big problem that an entire industry emerged to address this problem. Companies such as T. J. Maxx developed to take obsolete inventory off the hands of companies that over-ordered and move it through deeply discounted outlets.

T.J.maxx® BIG LOTS! DRUG EMPORIUM Discover the Value.™

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To fully appreciate the benefits Wal-Mart reaps from its superior supply chain solution, consider the traditional labor and paper approach, which is still employed by millions on companies today. Without and automated supply chain, an employee must make a periodic physical inventory count – usually using a clipboard and inventory report. Later, the actual quantities on-hand are then compared to the target quantity levels in the back office to flush out the re-order quantity. From there, employees fill out purchase orders and phone them into the central warehouse – all the while generating expenses for labor costs, paper supplies, and even the long distance phone call. Inefficiencies are a certainty. On many occasions, employees placing orders via the telephone are placed on hold for several minutes, costing valuable time. Eventually the purchase order details are read aloud over the telephone to the order taker at the central warehouse – this is a very inefficient process by today's standards. Even in the event that a fax machine is used, these devices are plagued with inefficiencies as well. For example, fax machines are sometimes temporarily unavailable for use when incoming documents are being received, or others are sending faxes of their own. Also, fax machines are notorious poor at feeding documents; and the receiving fax machine often runs out of fax paper and is unable to receive. Once faxes are successfully received, they can sit in the basket for hours or days before they are processed. Even then, upon processing faxed data can be inaccurately entered into the system due to illegible documents or keystroke errors. And so it goes – from one end of the supply chain to the other – the same inefficient process continues to cost many days in turn-around time, many hours in labor costs, and much higher risks of communication errors.

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Security

Chapter 10

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Privacy Test

As usage of the Internet and CRM products expand, huge amounts of data are being collected on everyone. With each bulging database comes the increased possibility that tender information will fall into the wrong hands or that erroneous information will be collected. Everywhere you turn cameras are watching you, companies are building profiles on you and your habits, software programs track where you go and what you read on the Internet. The public has pushed back with many people crying enough is enough. This web page addresses some of the privacy issues and some of the measures you can take to protect yourself at least a little. However please be advised that this web site does not pretend to address all of the issues or solve the privacy dilemma. You alone are responsible for enacting privacy measures which are consistent with your own desires for privacy.

Take the Privacy Test

1. Have you ordered your own credit reports for $8.00 each?		
www.experian.com	Yes	No
www.equifax.com	Yes	No
www.transunion.com	Yes	No
2. Have you ordered your medical history report for $8.50?	Yes	No
www.mib.com		
3. Have you ordered your own Social Security Earnings report for free?	Yes	No
www.ssa.gov		
4. Have you ordered a copy of your driving record?	Yes	No
http://www.ark.org/dfa/motorvehicle/driverservices.html		
5. Do you take time to "Opt Out" of junk mail?	Yes	No
http://www.the-dma.org/		
6. Do you avoid filling out warranty and registration cards - or use an alias when doing so?	Yes	No
7. Do you avoid publicly donating money to charities?	Yes	No
8. Do you avoid joining clubs and organizations?	Yes	No
9. Do you avoid subscriptions to magazines or use an alias?	Yes	No
10. Do you have an un-published telephone number?	Yes	No
11. Do you avoid sweepstakes?	Yes	No
12. Do you avoid giving out your social security number whenever possible with persistence?	Yes	No
13. Do you refuse to allow your credit card number to be written on your checks? (unlawful in many states to do so)	Yes	No
14. Do you refuse to allow your phone number and address to be written	Yes	No

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on your credit card slips? (also unlawful in many states)		
15. Do you avoid cordless phones?	Yes	No
16. Do you avoid cellular phones?	Yes	No
17. Do you subscribe to "Caller ID Blocking"?	Yes	No
18. Do you have a PO Box address to use in all but the most important circumstances?	Yes	No
19. Do you shield your hand at ATM machines when entering your PIN number?	Yes	No
20. Do you shield your hand when entering calling card numbers at public telephones to make long distance calls?	Yes	No
21. Do you read the fine print on applications and order forms?	Yes	No
22. Do you encrypt your e-mail?	Yes	No
23. Do you use a combination of letters and numbers in your passwords?	Yes	No
24. Do you change your passwords occasionally?	Yes	No
25. Do you use different passwords for every account?	Yes	No
26. Is your computer password protected at the system level?	Yes	No
27. Do you have a second e-mail account for personal use?	Yes	No
28. Do you have a second e-mail account that you use for less important purposes?	Yes	No
29. Do you sign your name legibly when signing Signature Capture Devices?	Yes	No
30. Do you read privacy policies on web sites?	Yes	No
31. Have you taught your children not to give out personal information on the internet?	Yes	No
32. Do you clear your cache frequently after browsing?	Yes	No
33. Do you make sure to use secure connections when transmitting sensitive data over the internet?	Yes	No
34. Do you reject un-necessary cookies?	Yes	No
35. Do you use anonymous re-mailers when appropriate? (Hushmail for example) https://www.hushmail.com/	Yes	No
36. Do you use anonymizers when browsing? http://www.anonymizer.com/	Yes	No

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37. Do you use a personal firewall on your internet connection?	Yes	No
38. Have you read your company's privacy policy?	Yes	No
39. Do you perform due diligence on any new service, company, or web site that you patronize?	Yes	No
40. Do you avoid using newsgroups or chat rooms, or at least use an alias?	Yes	No
41. Do you use a digital ID to authenticate your e-mail?	Yes	No
42. Do you ignore junk e-mail?	Yes	No

How did you score? - Multiple Your **YES** responses by 3. In previous audience surveys, the audience has scored on average as follows: (The higher you score, the more measures you have taken to protect your privacy.)

Less than 20 - 27%;
20 to 40 - 55%;
40 to 60 - 8%
(10% did not report their score.)

Encryption

How Encryption Works - Encryption is based on prime numbers - two prime numbers to be exact. When multiplied together, two prime numbers will yield a product that is only divisible by one and itself – and those two prime numbers. These prime numbers are used in a complex algorithm to scramble (encrypt) a message or file. Thereafter, the two prime numbers are needed again in order to unscramble (decrypt) the message or file. An example is shown below:

	12,313	Prime Number 1
X	45,613	Prime Number 2
	561,632,869	Product

Bit's Explained – All data stored on a computer (including prime numbers) is converted to hexadecimal and then to binary format. A binary format is a "0" or a "1". The "0" or "1" is represented as a "positive" or "negative" charge on a computer's hard drive, or as a small of large pit (hole) on a CD ROM. From example the letter "A" is represented on your computer's hard drive as "0100 0001". Here is the complete alphabet and numbers 1 through 15 represented in binary code.

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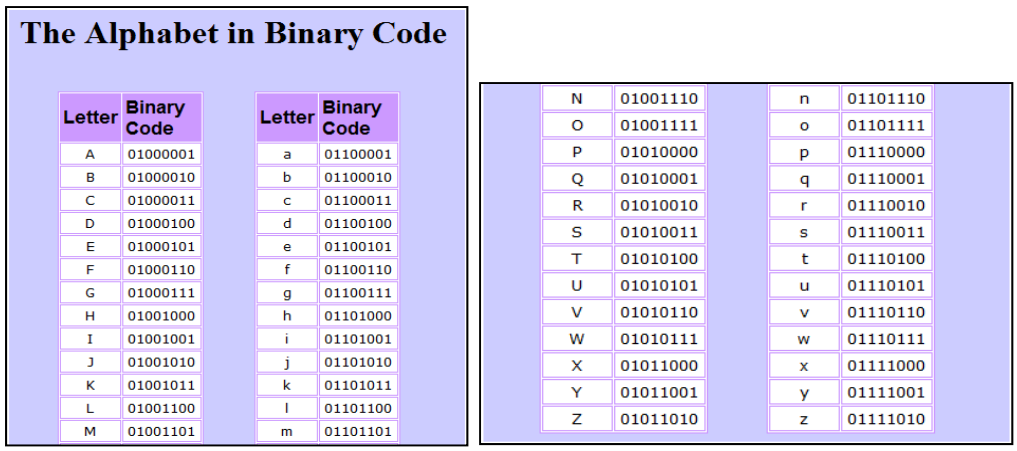

The Alphabet in Binary Code

Letter	Binary Code	Letter	Binary Code
A	01000001	a	01100001
B	01000010	b	01100010
C	01000011	c	01100011
D	01000100	d	01100100
E	01000101	e	01100101
F	01000110	f	01100110
G	01000111	g	01100111
H	01001000	h	01101000
I	01001001	i	01101001
J	01001010	j	01101010
K	01001011	k	01101011
L	01001100	l	01101100
M	01001101	m	01101101
N	01001110	n	01101110
O	01001111	o	01101111
P	01010000	p	01110000
Q	01010001	q	01110001
R	01010010	r	01110010
S	01010011	s	01110011
T	01010100	t	01110100
U	01010101	u	01110101
V	01010110	v	01110110
W	01010111	w	01110111
X	01011000	x	01111000
Y	01011001	y	01111001
Z	01011010	z	01111010

As you can see in the chart above, 8 bits of data are required to record a single letter or number. Therefore if you have a 40-bit encrypted password, you really have a 5 character password. 56 bit, 64 bit, and 128 bit encrypted passwords translate to 7, 8 and 16 character passwords. In other words, when you use 128 bit encryption, this means that you are using prime numbers that are 16 digits in length to generate the basis for scrambling your data.

The Size of the Prime Numbers - The size of the prime numbers used dictate how secure the encryption will be. A message encrypted with 5 digit prime numbers (40-bit encryption) yields about 1.1 trillion possible results. A message encrypted with 7 digit prime numbers (56-bit encryption) yields about 72 quadrillion possible results. However using 128-bit encryption yields 340,282,366,920,938,463,463,374,607,431,768,211,456 possible results. Mathematically, it would take a super computer testing 100 billion passwords per second, 107,829 billions years to break 128-bit encryption using brute force. (Today's fastest chips can handle about 256 million encryptions per second.)

Time Needed To Crack - Mathematically speaking, based upon today's top computing power 40-bit, 56-bit, 64-bit, and 128-bit encryption could be broken in 1 second, 19 hours, 7 months and 11,000 quadrillion years, respectively. This is why 128-bit encryption is the standard used world-wide to protect financial transactions and sensitive data.

Key Length (bits)	1995	2000	2005
40	68 seconds	8.6 seconds	1.07 seconds
56	7.4 weeks	6.5 days	19 hours
64	36.7 years	4.6 years	6.9 months
128	6.7e17 millennia	8.4e16 millennia	1.1e16 millennia

Table of time needed to break certain key sizes using hardware
http://www.cs.bris.ac.uk/~bradley/publish/SSLP/chapter3.html

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It has been estimated that 128-bit encryption will be breakable in about 105 to 125 years (by the years 2109 to 2129).

Letters versus Numbers - You might be interested to know that four words selected at random are much more effective than 56 Bit encryption. According to Jeremy Bradley of the University of Bristol, a 7-character password (56-bit) has 1,028,071,702,528 possible results. However four random words yield a total of 390,625,000,000,000,000 possible results. His basis for this claim is explained here:

http://www.cs.bris.ac.uk/~bradley/publish/SSLP/chapter3.html.

PGP (Pretty Good Privacy)

PGP or Pretty Good Privacy was released on June 5, 1991. Developed by Phil Zimmerman, Phil first sent PGP to Allan Hoeltje and then Kelly Goen who in turn released PGP through Internet user groups. This set off an unexpected feeding frenzy. Volunteers around the world offered to help Phil port PGP to other platforms, add enhancements, and generally promote the product. Fifteen months later, in September 1992, PGP 2.0 was released for MSDOS, Unix, Commodore Amiga, Atari, and a few other platforms, and in about ten foreign languages. Shortly thereafter US Customs took an interest in the case.

At first the government tried to build a case against Phil for exporting weapons outside the US, and they frequently harassed him. By doing so the government helped propel PGP's popularity by igniting controversy that would eventually lead to the demise of the US export restrictions on strong cryptography.

Today, PGP remains just about the only way anyone encrypts their email. And now there are a dozen companies developing products that use the OpenPGP standard. You can download PGP for free, or purchase a more feature rich version at this web site: www.pgp.com. Here is a quick introduction into using PGP:

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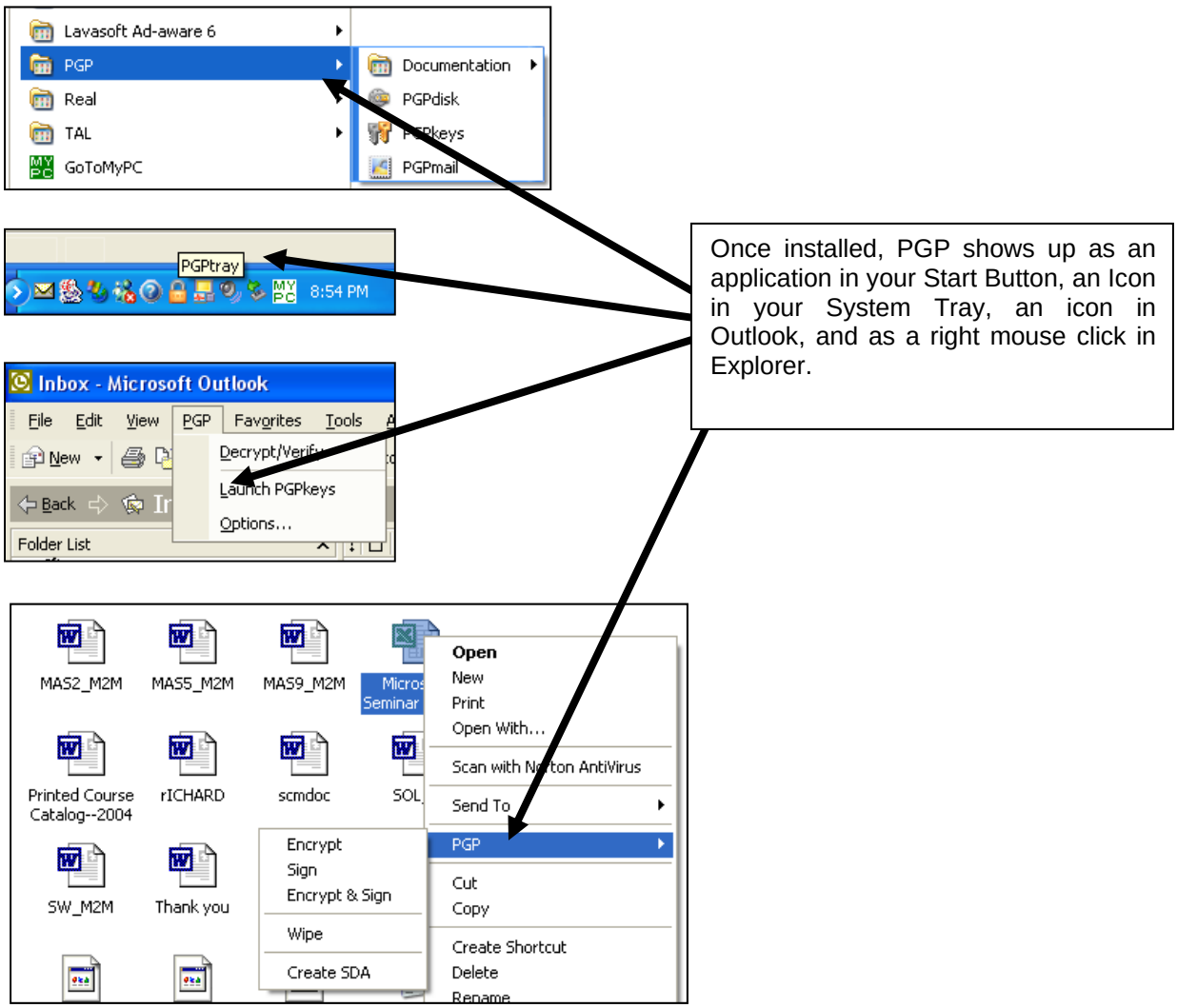

To start using PGP, launch the product and start the wizard to generate a set of encryption keys. The PGP wizard shown above walks you through the process of creating your encryption keys. Once you have created an encryption key, you can encrypt text, files, folder, or e-mails using that newly created PGP encryption key. Presented below is an example of a simple message before and after encrypting with PGP.

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Original Message

```
My credit card number is 487654876458764
```

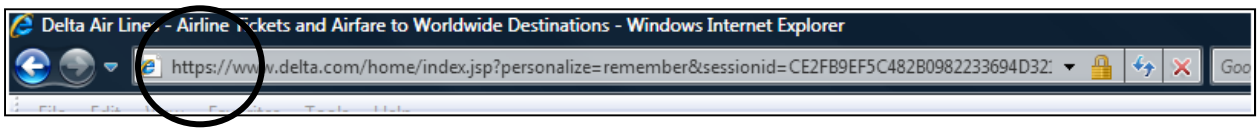
Same Message as Above - Encrypted with a PGP 128 Bit Key

```
-----BEGIN PGP MESSAGE-----
Version: PGP 8.0.3 - not licensed for commercial use: www.pgp.com
qANQR1DBwU4DWpD/xXWUSrgQB/9YzTEgIeaWWWGwI7QbZSADfxjiNYcIv9MgXkGN
EeiSjbbanr4LeVylp5CIwByQSipY1FWVuCfZimxwNsmlG8y3JpS8Hpu94/FpCruv
6w4fepg/eSbJaF6hxGegjjWXur3lMK0tPZVnp8eOTrgaz+787y1YPr5yVYUYDx1V
FN1Dh2XDUiKMU9BcfxAwbgm6EnkZqbo04tDQqUTMG5TLwYcL6Z7D+AUhDOiZWHl5
yjgj4heSuwkeCybAHA1ivAApAf8h1QTHZG5YUbF5jn9xZvM9q5Nv1a3vpDyzICQI
246b5hBTlpzJiFsbI9QJ59MeiQnYxWrc7A5NwrMUMV/mQmejB/9ZJS4KiK4Jb7+J
rkjYHqVvWrMYapDQN2nRhtFKxj9GTHqE5J9HgFRX5NoUooMOk8PTaOynivQtUMUF
9XkUdrJv+jz+rTuJA8UieDLPsfme0P9qcV/2seP1i6lhDJ7j7RcbnJZKw4ebR25y
S167lNARclnixXB9q7LDieAnJWZ//fGOoa8PXf9AaOUmD1x9qSvOAriBAduw6L1D
CqHpuRNsQM55YeIol6jjucqEZV0p4mrDkf1F9SxiVAKThly5aOdA/U4klr3rBFRH
FhogPngpRotbXt0XArxbf6sIj0a6VgpThSlyTcFNjFekD3bKAcCC0XrPhZzTO8cP
7kxpBL8t0lkBD5kRRBVpO618s31GIv1CSuwkTL2mdkej5meinYXZVmspp6TNu/V9
fsqto+AWZzxIwQtGOEJ1CEI/H4hwt/TYTTHOvwyNDx7McZfMYQmnVoh0jcYQV7V4
og===gWVJ
-----END PGP MESSAGE-----
```

It is important to point out that an encrypted message is still naked and wide-open on the internet or on a computer hard drive – it's just that now no one can make sense of that message/file/e-mail without the proper decryption key.

PGP's Two Key System - PGP is based on public key cryptography, a widely accepted and highly trusted public key encryption system, by which you and other PGP users generate a key pair consisting of a **'private key'** and a **'public key'**. As its name implies, only you have access to your private key, but in order to exchange files with other PGP users you need a copy of their public key and they need a copy of yours. You use your private key to sign the file attachments you send to others and to decrypt the files they send to you. Conversely, you use the public keys of others to send them encrypted files and to verify their digital signatures. PGP won't route your e-mail over a Secure Socket Layer (SSL), but it will be unreadable by anyone other than you and the person to whom it is addressed. Keep in mind that encryption is for the message body only - it does not hide the subject line or the headers.

SSL – A Web Based Version of PGP's Two Key System - One popular implementation of public-key encryption is the Secure Sockets Layer (SSL). Originally developed by Netscape, SSL is an Internet security protocol used by Internet browsers and Web servers to transmit sensitive information. SSL recently became part of an overall security protocol known as Transport Layer Security (TLS).


Delta Air Line - Airline Tickets and Airfare to Worldwide Destinations - Windows Internet Explorer
https://www.delta.com/home/index.jsp?personalize=remember&sessionid=CE2FB9EF5C482B0982233694D32

Look for the "s" after "http" in the address whenever you are about to enter sensitive information, such as a credit-card number, into a form on a Web site. In your browser, you can tell when you are using a secure protocol, such as TLS, in a couple of different ways. You will notice that the "http" in the address line is replaced with "https," and you should see a small padlock in the status bar in the browser window.

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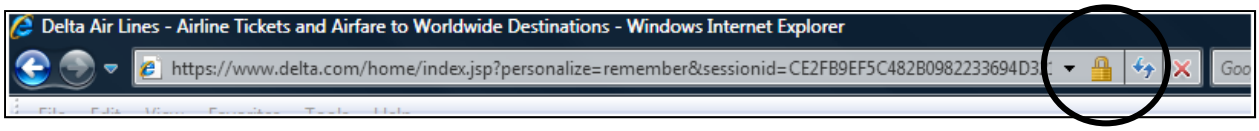
Delta Air Lines - Airline Tickets and Airfare to Worldwide Destinations - Windows Internet Explorer
https://www.delta.com/home/index.jsp?personalize=remember&sessionid=CE2FB9EF5C482B0982233694D3

The padlock symbol lets you know that you are using encryption. Basically what this means is that a private key has been generated by the server you are accessing, and has been sent to your computer and is being held in RAM until needed. Once you have entered the information you want to send and press the SUBMIT button, the key is used to encrypt the message and the data is sent to the web server, or in the case shown above – the Delta Airlines web server.

Public-key encryption takes a lot of computing, so most systems use a combination of public-key and symmetry. When two computers initiate a secure session, one computer creates a symmetric key and sends it to the other computer using public-key encryption. The two computers can then communicate using symmetric-key encryption. Once the session is finished, each computer discards the symmetric key used for that session. Any additional sessions require that a new symmetric key be created, and the process is repeated.

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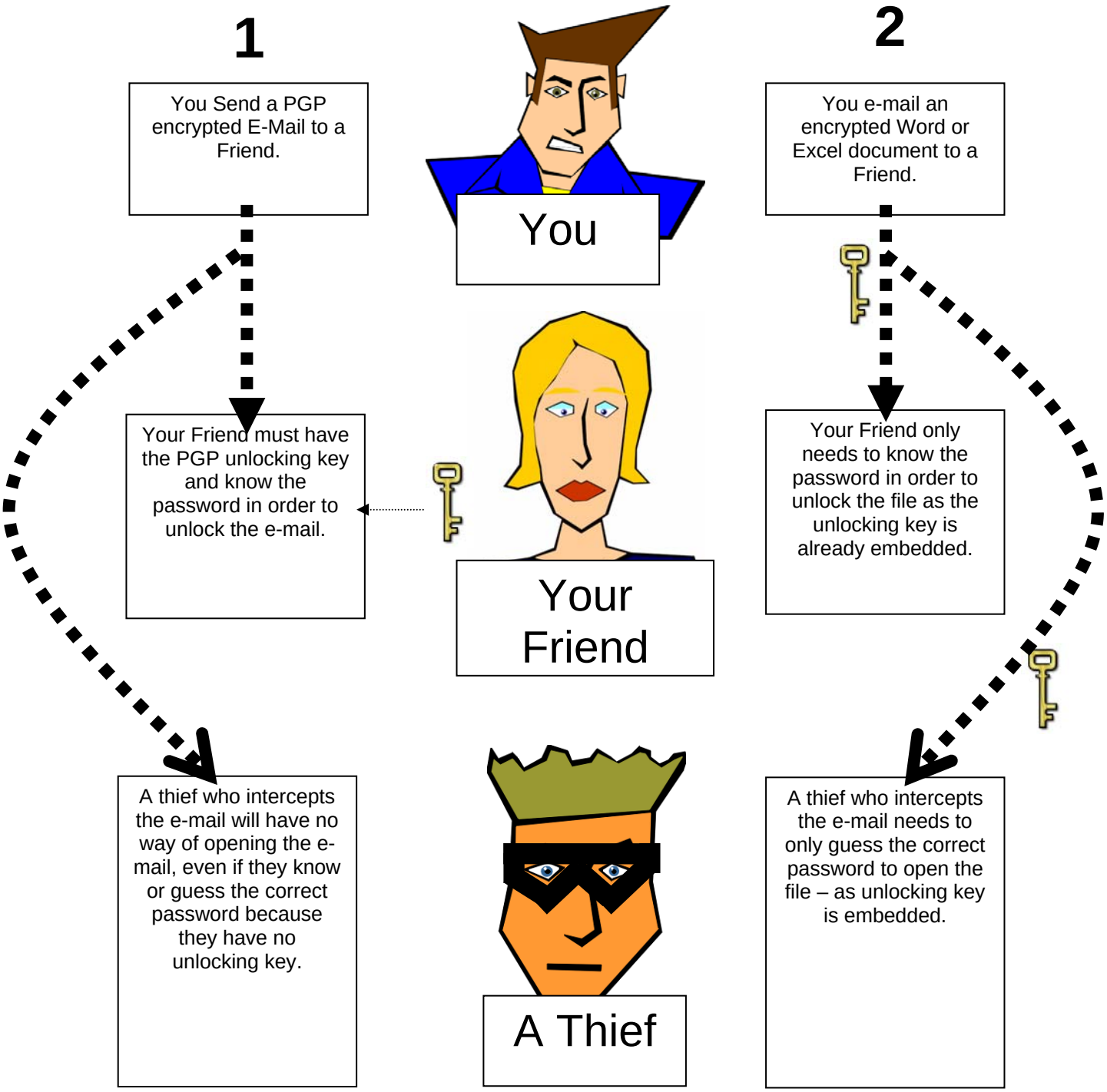
Self Decrypting Files

Some implementations of encryption are self-decrypting – which means that the unlocking key needed is already embedded in the file – all you need is the password to activate the unlocking key. Consider the following two examples:


1
You Send a PGP encrypted E-Mail to a Friend.
You
2
You e-mail an encrypted Word or Excel document to a Friend.
Your Friend must have the PGP unlocking key and know the password in order to unlock the e-mail.
Your Friend
Your Friend only needs to know the password in order to unlock the file as the unlocking key is already embedded.
A thief who intercepts the e-mail will have no way of opening the e-mail, even if they know or guess the correct password because they have no unlocking key.
A Thief
A thief who intercepts the e-mail needs to only guess the correct password to open the file – as unlocking key is embedded.

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Strategy

CHAPTER 11

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Employee Agreements

Selected portions of the strategy section of this manual are available at the following web site address: www.cpaadvisor.us. This section is being provided online as bonus material. Please be aware that this entire manual is always available to you on the Internet, where links, pricing, and other materials are continually updated for your convenience. If the section you want to read is password protected, please use the following username and password to access this information:

User name: cpa
Password: integrity

Top 25 Computer Mistakes

1. **Slow Internet Access** – If your microwave oven took 8 hours to bake a potato, you would likely never use it. The same is true about Internet access speed. Those who rely on pitiful dial up Internet connections fail to use the Internet to its fullest potential.

2. **Purchase the wrong products**

3. **Pay too much, fail to shop around**
    1. Internet
    2. Computer stores
    3. Resellers

4. **Failure to educate themselves before making a purchase decision**

5. **Failure to look for coupons or rebates**

6. **Failure to look for refurbished items**

7. **Failure to be adequately trained in the system/application**

8. **Paying good money to update rather than replace old technology**

9. **Selecting software based on the old legacy hardware system you have**

10. **Buying too cheap**

11. **Buying CRTs when Flat panels provide much better performance and value per dollar**

12. **Failure to properly configure computer settings**

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13. **Failure to implement virus protection** – Obviously one of the biggest threats

14. **Failure to take proper security measures**. – Wireless is great, but opens you up to attack, lock access to your systems with WEP encryption, NAT and SPI enabled wireless routers

15. **Failure to implement a high speed LAN**. It does little good to purchase and implement 100 megabit Cat 5 cables if you plan to hook those cables up to 10 megabit hubs, routers or cards. You should have a certified network technician install your LAN properly and use a LAN speed tester gun to certify the performance of each network location

16. **Failure to download software updates in a timely manner**

18. **Using one password for all products/access**

19. **Failure to have a second e-mail address for chat /personal purposes**

20. **Turning your computer off each day-this has not been necessary for some time**

21. **Not backing-up regularly, not backing-up entire system, not backing-up offsite**

22. **Failure to have a web site** – At a minimum companies should have a web site that provides company overview and contact info. Summary of products, services, mission

23. **Failure to put contact info on each of your web page addresses**

24. **Using old printers** – new printers can save as much as 1.5 scents per page because they use toner more efficiently, therefore assuming you print 20 cases of paper a year, you can save $1500 - much more than you pay for some new printers.

25. **Turning on search tool controls**

Additional Late Breaking Topics:

SplashPower - Recharge any device, without plugging into any cable! - SplashPower showed the SplashPad in the last CeBIT, in Germany. The SplashPad is a universal wireless charging platform which delivers power to mobile devices. The SplashPad is a portable flat surface less than 6mm thick powered from any electric outlet. Put as many devices as you can fit on it and charge up in a truly intuitive fashion. It can even be built into cars, desks and airplane tables! Splashpower is based on inductive power transfer. Its key features are:

1. Multiple devices can be placed anywhere on the pad and charge up simultaneously
2. Efficient power transfer
3. Very low cost and hassle-free implementation
4. Intrinsic self-limiting receiver module with over-voltage protection

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Microsoft Surface – Microsoft's latest offering is hot, sleek and shiny. It's a hi-tech coffee table shaped computer called 'Surface'! Surface is a Windows Vista powered computer placed inside a shiny black table base. These machines are user-friendly and have a 30-inch touch screen in a clear acrylic frame. The Surface can interact with cell phones, digital cameras and other physical objects wirelessly. Users can interact with the machine by touching or dragging their fingers across the screen, or by setting real-world items tagged with special bar-code labels or identification tags. $5,000.

Samsung Washer - Multi-tasker wowed us: In wash mode, it releases silver ions into the tub, which, Samsung promises us, eliminates those nasty post-workout odors that seem to linger for a few wash cycles. In the dry cleaning mode, it blasts your clothes with scorching hot air to rid them of odors and bacteria. And as a dryer, it dries. (What'd you expect?) At press time, Samsung couldn't tell us exactly when the Air Wash will debut, but the silver-ion technology can be found in the WF316LAW model.

The Mylo - A Wi-Fi demon, the Mylo keeps you in contact with cronies, bosses, and minions alike via IM (the Google and Yahoo varieties for now, at least), e-mail, and Skype calls. Because Wi-Fi is more scattered than Ozzy's frontal lobe, they'll toss in a year of T-Mobile HotSpot

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coverage. Still find yourself out of range? Watch movies, listen to music, and play games on its 2.4-inch LCD screen. $350.

These Motorola headphones can channel tunes from any Bluetooth-enabled device, sans cord. Sound quality fell off a cliff, not unlike Axl Rose's career, when we strayed more than 10 feet, but was full-on raging at close quarters. A built-in microphone syncs with your Bluetooth phone when Mom calls. $130.

More - **www.urbanmonarch.com/must-have-gadgets-2007/**

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You have to admire a company that can continue a research program over 20 years and countless millions of dollars. A research program with the far reaching aim of mimicing human motion in robotic form. It was science fiction when they started it and it's getting closer to science fact with every new revision.

So what is Asimo? It's a robot modelled after a human being. Unlike sony's qrio, which was an excuse for technology research, Honda are giving every impression that they really want to develop Asimo into a viable product. Not this year of course and probably not for another ten, but Honda's show was full of references as to how an Asimo type of design can help people in their daily lives.

Honda have deliberately made Asimo "cute" and it's distrubingly easy to empathise with it which is an important part of the design philosophy. If your new home help looks cute and friendly you're more likely to trust it I guess.

So what's new? To start with Asimo can now run at 6 kph. In fact, given that it's a robot it can probably run at 6kph until its power runs out so it's already more mobile than this writer in that respect:-)

We saw Asimo kicking a ball, balancing on one foot and climbing up and down stairs, all of which are impressive leaps in robotic technology.

More…**www.coolest-gadgets.com/.../**

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J. Carlton Collins, CPA

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J. Carlton Collins, CPA is a Certified Public Accountant with experience in technology, tax, auditing, accounting systems, financial reporting, and bond financing. He is an author, lecturer, and technology & accounting systems consultant. He has published more than two dozen books, two hundred articles, and thousands of web pages. As a public speaker, Mr. Collins has delivered more than 2,000 lectures in 44 states and 5 countries addressing more than 500,000 business professionals, including numerous keynote lectures at national and international conferences. Key awards include: "AICPA Lifetime Achievement Award", "Tom Radcliffe Outstanding Discussion Leader Award", "GSCPA Outstanding Discussion Leader Award", and "Accounting Technologies' Top Ten CPA Technologists Award". As a consultant, Mr. Collins has assisted 275+ large and small companies with the selection and implementation of accounting systems. Mr. Collins has a Bachelors degree in Accounting from the University of Georgia, is a 26 year member of the AICPA and the Georgia Society of CPAs, and is also a licensed realtor.

At the University of Georgia Mr. Collins was elected President of the Phi Eta Sigma Honor Society, was initiated into the BIFTAD Honor Society, was a member of Alpha Tau Omega fraternity, and served three years in the Judicial Defender/Advocate program. At Glynn Academy High School Mr. Collins was Senior Class President, Class Valedictorian, and received a principle nomination to Annapolis Naval Academy. Mr. Collins has been married for 25 years and has two children. He devotes his leisure time to family, travel, tennis, fishing, snow skiing, and riding motorcycles (dirt and street). Mr. Collins is president of his home owners association, participates in the Gwinnett Clean and Beautiful program, and volunteers for Cooperative Ministries food drive.

Selected Positions, Awards & Accomplishments:

1. 2008 and 2009 Chairman of the Southeast Accounting Show - the south's largest CPA event.
2. Recipient of the 2008 Tom Radcliff Outstanding Discussion Leader Award.
3. Named “Top Ten CPA Technologists” by Accounting Technologies Magazine; Named “Top 100 Most Influential CPAs ” by Accounting Technologies Magazine in multiple years.
4. Has personally delivered over 1,500 technology lectures around the world.
5. Has published 80+ pages of accounting software articles in the Journal of Accountancy.
6. Recipient of the AICPA Lifetime Technical Contribution to the CPA Profession Award.
7. Recipient of the Outstanding Discussion Leader Award from the Georgia Society of CPAs.
8. Lead author for PPC's Guide to Installing Microcomputer Accounting Systems.
9. Has installed accounting systems for more than 200 companies.
10. Past Chairperson of the AICPA Technology Conference.
11. Has delivered keynote and session lectures at dozens of accounting software conferences including seven Microsoft Partner Conferences, five Sage Conferences, and multiple conferences for Epicor, Open Systems, Exact Software, Sage ACCPAC ERP, Dynamics.NAV, Dynamics. AX, SouthWare, Axapta .
12. Has provided consulting services to many computer companies (including Compaq, IBM, Microsoft, Apple, Novell, Peachtree, Epicor, Sage Software, Exact, ACCPAC, Intuit, Peachtree, Great Plains, and others).

As an auditor Mr. Collins has audited businesses in the areas of health care, construction, distribution, automobile dealerships, insurance, manufacturing, and general business. Mr. Collins' tax experience includes corporate, individual, partnership, fiduciary, and estate tax planning work. In the area of finance, Mr. Collins has prepared feasibility studies and financial forecasts for nearly 300 projects seeking more than $3 billion in startup capital, including field work for 80 of those projects. Mr. Collins is familiar with bond issues, Medicare and Medicaid reimbursement, and conventional financing matters. As a consultant, Mr. Collins worked with the entire Microsoft Excel development team contributing more than 500 pages of design improvements - many of which are found in Excel today.

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CPE Course Evaluation Form

(In accordance with State Board guidelines, this form is retained as a permenant record of your attendance)

COURSE TITLE: **2010 Tech Update for CPAs** DATE:

NAME:

COMPANY:

ADDRESS :

CITY, STATE, ZIP:

TELEPHONE: E-MAIL:

Instructor's Name: **J. Carlton Collins**

	Excellent= 5	Very Good=4	Average=3	Fair=2	Poor=1
1. The Discussion Leader's knowledge of the subject matter was:	⑤	④	③	②	①
2. The Discussion Leader's presentation skills were:	⑤	④	③	②	①
3. The learning objectives were met	⑤	④	③	②	①
4. The course materials were valuable and contributed to learning	⑤	④	③	②	①
5. The course content was relevant	⑤	④	③	②	①
6. Time allocations were appropriate	⑤	④	③	②	①
7. Please rate the quality of the facilities	⑤	④	③	②	①
8. Were prerequisite requirements appropriate	⑤	④	③	②	①
9. Please rate the effectiveness of the audio / visual systems	⑤	④	③	②	①

COMMENTS

My Area is:
- ☐ Public Practice
- ☐ Industry
- ☐ Government
- ☐ Education
- ☐ Other:

My Work Experience is:
- ☐ None
- ☐ 0-5 years
- ☐ 6-10 years
- ☐ 11-20 years
- ☐ More than 20 years

My Industry is:
- ☐ Finance
- ☐ Manufacturing
- ☐ Retail
- ☐ Services
- ☐ Other:

The Size of my Company is:
- ☐ 5 or less employees
- ☐ 6 to 25 employees
- ☐ 26 to 100 employees
- ☐ 101 to 500 employees
- ☐ 501 or more employees

My Position is:
- ☐ Owner or Partner
- ☐ Manager/CFO
- ☐ Supervisor
- ☐ Senior or Staff
- ☐ Administrative
- ☐ Other

My Reason for Attending:
- ☐ Course Reputation
- ☐ Instructor
- ☐ Location
- ☐ Price
- ☐ Subject
- ☐ Other:

I heard about this course:
- ☐ Course Brochure
- ☐ Newsletter Ad
- ☐ Telemarketing Call
- ☐ Web Site
- ☐ Word of mouth
- ☐ Other:

My Computer Experience is:
- ☐ None
- ☐ Very Little
- ☐ Moderate
- ☐ Substantial
- ☐ Excellent

I Use the Internet:
- ☐ Never
- ☐ A Little Bit
- ☐ Moderately
- ☐ Daily
- ☐ All the Time
- ☐ Other :

My Primary Computer is:
- ☐ New
- ☐ 1 year old
- ☐ 2 years old
- ☐ 3 years old
- ☐ 4 years old
- ☐ 5 years old

My Opinion of Computers:
- ☐ Can't live without them
- ☐ They are very useful
- ☐ Somewhat useful
- ☐ Occasionally useful
- ☐ More trouble than worth
- ☐ I hate them

I get my CPE from:
- ☐ CPA Society Seminars
- ☐ Other Seminars
- ☐ Self Study Courses
- ☐ Online CPE web sites
- ☐ Conferences
- ☐ Other: